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Is the delivery of psychological formulation associated with proximal changes in working alliance and verbal engagement? A mixed-methods case-series analysis

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Thesis Abstract

Objectives

Clinical formulation, also known as ‘case conceptualisation’ and ‘psychological formulation’ refers to the synthesis of diffuse clinical information into a coherent, theoretically based narrative. There is scant evidence to support claims made regarding benefits of formulation and extant research in this area is characterised by operational and methodological difficulties. This thesis addresses these difficulties and reports a mixed-methods study, investigating proximal associations between cognitive behavioral therapy specific formulations, therapeutic alliance and client engagement.

Methods

A secondary analysis was undertaken of audio data using three sets of participant data recordings of cognitive behaviour therapy. A mixed methods case-series approach was employed to address responsivity to formulation at the level of each participant. Formulations delivered by a therapist were identified using pre-defined criteria and an observational working alliance measure was used to rate working alliance both immediately prior to and post-formulation delivery. Pre and post-formulation working alliance ratings were analysed to identify, or rule out, trends of improvement or deterioration in working alliance associated with formulation delivery. Additionally, qualitative analysis was undertaken to explore the a priori assumption that engagement versus disengagement behaviours could be reliably identifiable at the level of immediate verbal response, post formulation delivery. Categories identified through qualitative analysis were considered in relation to wider therapy outcomes across cases.

Results

Visual analysis (aided by quantitative decision criteria) led to the identification that therapist-delivered formulations were associated with small and ‘questionable’ reductions in working alliance, with similar responsivity demonstrated within each participant case,

indicating that formulations may have been associated with a proximal deterioration in working alliance.

Framework analysis led to identification that *engage* and *disengage* client responses immediately following formulation could be operationalised and reliably identified, with a range of instantiations of each category identified across participants. In addition, a third category of *neutral* response was also identified. Whilst the majority of immediate responses to formulation were characterised by *engage* across all participants, one participant exhibited substantially higher levels of the *engage* response relative to the participant sample. Conversely, another participant exhibited higher levels of the *disengage* response compared to the sample. Analysis of wider therapy outcome measures such as symptomology and functioning between participants indicated a positive relationship between the category *engage* and therapy outcome. Conversely, analysis indicated a negative relationship between the category *disengage* and wider therapy outcomes.

Discussion

To the authors' knowledge, this is the first study using cognitive behaviour therapy to examine in-session therapist formulations in terms of immediate client responses to these formulations. As well as the first study to address whether there are observable formulation-contingent changes in working alliance.

Findings demonstrated a small, replicated negative association between formulation and working alliance across all participants. Different profiles of verbal engagement responsivity were identified and a positive relationship was demonstrated between the overall level of verbal engagement response to formulation and wider therapy outcomes Findings outlined are in contrast to the extant literature in which the majority of quantitative studies have failed to discern any association between therapist formulation delivery and client-therapist working alliance and other therapy processes. Findings should be treated with caution due to the small sample size and lack of control conditions. As such, this study was unable to demonstrate causality or directionality of formulation upon processes investigated. It is possible that individual client factors such as individual differences (e.g. agreeableness) might predict engagement and alliance responses analysed post-

formulation, independently of the formulation itself. Additionally, negative associations identified between formulation delivery and working alliance were very small and it is possible that replications were an example of a type-one error. Secondly it is possible that if a true effect of formulations has been identified, that this is highly transient and clinically speaking, insignificant. However, another possibility is that this small effect has an accumulative impact or interaction with other variables that were not addressed in this study. In this thesis, findings, limitations and future research recommendations are critically discussed in relation to the extant literature regarding cognitive case conceptualisation, related models of psychological formulation and psychotherapy processes.

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Statement of Contribution

Project design: Robin Colley, Dr Nima Moghaddam, Dr David Dawson and Dr Mark Gresswell.

Data set: Obtained from and used with consent of Dr Hannah Daniels.

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Application for ethical approval: Robin Colley, supervised by Dr Nima Moghaddam.

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Qualitative and Quantitative Data Analysis: Robin Colley.

Thesis write up: Robin Colley supervised by Dr Mark Gresswell, and Dr Nima Moghaddam.

Poster design and production: Robin Colley.

[1] Field notes used, with a combination of paraphrasing and direct quotes. Please see extended methods section for further context on the use of field notes and pragmatic ethos of functional analysis.

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Systematic Literature Review

How Effective is Cognitive Analytic Therapy?: A Systematic Literature Review and Meta Analysis.

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Highlights

- A systematic literature review and meta-analysis were undertaken to investigate the effectiveness of CAT. Seven peer reviewed RCT's, with a combined total of 270 participants met inclusion criteria for this review.
- Results indicated that CAT is an effective intervention compared to control for reducing psychological distress, with a significant large effect size demonstrated. However sensitivity analysis reduced the effect to non-significant (p=0.08).
- Results for other areas were non-significant, with varying effect sizes, all favouring intervention.
- Recommendations are made for future research to examine the effectiveness of CAT, acknowledging the relatively small sample sizes of papers and small number of RCTs available.

Abstract

Cognitive Analytic Therapy is an integrative therapy, designed for use in NHS settings in the context of time limited therapy resources. Despite its increasing popularity, there has been a lack of research considering Cognitive Analytic Therapy's effectiveness through the use of well controlled research trials.

A systematic literature review was conducted, with the search term "cognitive analytic*" employed across five data bases: PsychARTICLES (1972 - 2016), CINAHL (1993 – 2017), Ovid MEDLINE (1983 - 2017) PsychINFO (1972 - 2017) and Academic Search Complete (1986 – 2017), searching for Randomised Control Trials that assessed the impact of Cognitive Analytic Therapy, in order to evaluate its effectiveness. Inclusion criteria were purposively broad due to an established lack of controlled trials.

Seven Randomised Control Trials were identified for review. Data was divided into (1) primary outcomes, pertaining to the diagnostic population of each study (which included personality disorders, bi-polar, anorexia-nervosa and type-1 diabetes); and (2) secondary outcomes that considered the impact of Cognitive Analytic Therapy upon common measures across studies, these included 'psychological distress' and 'social and occupational functioning'.

A Meta-analysis was used, comparing Cognitive Analytic Therapy to control conditions across established outcomes. Results indicated a large pooled effect size (g= 0.68; 95% CIs [-1.26, -0.10]; Z= 3.74, p= < 0.05) favouring CAT on a secondary

outcome measure of psychological distress. Outcomes demonstrated a moderate level of heterogeneity (I^2=43%). Further sensitivity considerations and substantial weighting differences, should lead to caution being taken before any analytical conclusions are drawn. Results for other areas were non-significant, with varying effect sizes, favouring intervention.

Initial findings indicate CAT may be an effective intervention for psychological distress with some indication that it may be effective across other outcomes. Findings are discussed, with recommendations made for future research to clarify findings

.

Introduction

Cognitive Analytical Theory (CAT) was developed by Anthony Ryle, a Consultant Psychotherapist, with the focus upon developing an efficacious and time limited therapy within the context of the National Health Service (NHS), wherein there is usually a high level of demand, and limits set on the maximum number of sessions a client can receive (Ryle & Kerr, 2002).

CAT was developed in the 1980s, within the context of a cognitive and behavioural landscape. Anthony Ryle aimed to operationalise constructs and processes within traditional psychoanalytic approaches using a cognitive behavioural framework (ACAT, 2017).

CAT emphasises social and interpersonal contexts, also integrating theory from Vygotskian and attachment schools of thought, based on the work of Leiman (1992). Within these models, patterns of interaction with significant others (e.g. parents and carers) are considered to be intrinsically characterised by the values and intentions of the significant other(s). These value laden interactions are internalised, leading to the development of an individual's 'reciprocal roles', ways of relating to the self and others (Rieber, 1997). An example of a reciprocal role and how it might be established is: a person who is highly critical of themselves and others, with the reciprocal role established in the context of a demanding parent (Ryle & Kerr, 2002). CAT also gives attention to the role of trauma and disturbance of parental interactions e.g. abuse by a caregiver, integrating concepts from object relations and attachment theory (e.g. Jellema, 2002).

Change Conceptualisation

CAT's specific emphasis is placed on the accurate description, awareness and understanding of behavioural patterns of relating to the self and others. According to the CAT model, this facilitates increased control over a client's difficulties, with efforts then made to remedy difficulties, through consciously pursuing more positive adaptive self-care and interactions. A key aspect of this is the therapist's accurate understanding and validation of these difficulties. Care is taken not to reinforce patterns that are already present, but to emphasis new possibilities (Ryle & Kerr, 2002).

Ryle and Kerr (2002) acknowledge the importance of 'common factors' (see Wampold, 2015) in therapy, including the importance of a trained professional who validates and attends to a client's difficulties, as well as the roles of collaboration and therapeutic alliance. Additionally they point out that CAT therapy is well placed to work with clients with a diagnosis of personality disorder, due to CATs emphasis upon the facilitation of positive attachment relationship between therapist and client.

Current Evidence Base

As outlined, CAT integrates theoretical stances of well-established therapies and factors (e.g. Cognitive Behaviour Therapy; CBT). It is a popular training option for psychotherapists and psychologists and is a growing modality (Ryle, Kellet, Hepple & Calvert, 2014).

However, despite emerging in the 1980's, the first systematic review of cognitive review of cognitive analytical therapy was very recent (Calvert & Kellet, 2014). This

review stated the importance of the ‘hour-glass’ model within psychotherapy research (Salkovskis, 1995). The hour glass model is a research evaluation process requiring new modalities of psychotherapy to begin with small sample size evaluation, followed by randomised controlled trials (RCT’s), followed by consideration of specific change mechanisms and overall efficacy, leading to larger clinical trials considering the therapy’s impact in naturalistic settings. Calvert and Kellet (2014) concluded that more than half of the studies they reviewed were of high quality. It was discussed that when compared to other modalities, the effectiveness of CAT was ambiguous and open to interpretation. The review authors outlined that the extant research had not met the requirements of the ‘hour glass model’, with insufficient studies characterised by small sample sizes. It was however discussed that the current evidence showed promise in relation to personality disorder populations, but that more research was needed in this area, and other diagnostic categories. Research was considered across a range of diagnoses, with the most promising findings in relation to personality disorder and eating disorders. Others areas were inconclusive in relation to their findings, some of which was due to quality concerns (Calvert & Kellet, 2014).

A brief scoping exercise outlined that additional research has been conducted since the above review, including an RCT (Evans, Kellett, Heyland, Hall & Majid, 2016). GRADE is a quality appraisal tool developed by ‘the Grading of Recommendations, Assessment, Development and Evaluation’ (GRADE) group (Cochrane, 2017) and is Cochrane’s recommended approach for rating evidence quality. According to the GRADE hierarchy of evidence, the highest weight is given to RCT based research (Cochrane, 2017). This systematic review will address the

highest quality primary evidence, providing relatively robust conclusions on the current state of the evidence. A meta analysis will be used due to its advantages in clarifying equivocal findings in bodies of research, such as those in Calvert and Kellet (2014), in which there are large differences relating to the power of each study. This will build upon the vote-counting procedure used in the previous systematic review, which can be prone to erroneous findings (e.g. a tendency to indicate positive findings when using underpowered study data).

Aims

The purpose of this review is to therefore to systematically consider the effectiveness of CAT in relation to RCT research. 'Effectiveness' RCT's consider the impact of interventions in more naturalistic settings as oppose to Efficacy RCT's, which are undertaken in more controlled, less pragmatic conditions (Gartlehner, Hansen, Nissman, Lohr, & Carey, 2006). Given the findings of the aforementioned review (Calvert and Kellet, 2014) and in relation to a recent RCT (Evans et al., 2016) it appears that the majority of research relating to CAT is pragmatic in nature, indicating that an investigation of effectiveness would be the most appropriate. This systematic literature review will employ a meta analytic approach, comparing CAT intervention conditions to control conditions, comparing CAT to controls on primary diagnostic measures (e.g. for a study with depression, a measure such as the Becks Depression Inventory would be considered) grouping these 'primary outcomes' to consider overall effectiveness. In line with the research recommendations of Calvert and Kellet (2014), the review will also consider the effectiveness of CAT with respect to singular studies, sub-grouped by a particular focal problem (e.g. personality

disorder). Secondary-analysis (secondary outcomes) will consider common outcome measures across studies (e.g., a measure of psychological flexibility). This proposed trans-diagnostic approach is particularly justified given that CAT integrates a number of therapeutic mechanisms and concepts from established approaches, which it can be argued are relevant to a range of difficulties (ACAT, 2017).

Research Questions

The review will consider the following questions:

1) Is CAT an effective intervention across 'primary outcomes' and/or secondary outcomes? This will be considered in relation to pooled effect-sizes obtained through meta-analysis comparisons (CAT versus Control) of: (1) primary outcome measures, and (2) secondary outcome measures across RCTs. The degree to which CAT will be considered effective will depend upon the magnitude of effect sizes obtained. Confidence in the effect size values will depend upon a number of factors, including: the degree of heterogeneity (higher heterogeneity resulting in less confidence), the risk of publication bias, and other a priori established quality assessment factors.

2) Is CAT an effective intervention for groups with common focal difficulties, e.g. specific-diagnoses)? (The same considerations as research question one will be made in relation to considering effectiveness).

3) What is the quality of the CAT, RCT literature? Pre-specified tools and considerations outlined in the procedure section will be employed to answer this.

Method

Search Strategy

A systematic search for RCT articles was conducted across five electronic databases: PsychARTICLES (1972 - 2016), CINAHL (1993 – 2017), Ovid MEDLINE (1983 - 2017) PsychINFO (1972 - 2017) and Academic Search Complete (1986 – 2017) using the search item: “Cognitive-Analytic*”. [3]

The following inclusion and eligibility criteria were employed to ensure that appropriate studies could be selected for the purposes of review and comparison. Given that it was already known that there were a small number of CAT RCT’s (from scoping exercises), criteria were kept broad to ensure maximal identification and inclusion of relevant RCT evidence. A priori Inclusion and exclusion criteria were established and are outlined below.

Inclusion Criteria

- Must be peer reviewed.
- Must be in English.
- Must use CAT (in either individual or group formats).

[3] It was noted that this search term was used in a recent systematic literature review to good effect (Calvert and Kellet, 2014). Initial scoping searches indicated that this search term was sufficiently focused to locate RCT’s.

- Must be ‘pure’ CAT e.g., not obviously integrated with another modality.
- Must use an RCT Design.

Exclusion Criteria

- Studies examining CAT as part of a broader integrative intervention (i.e. combining CAT with other treatment models).
- Studies lacking data to generate effect sizes (however, reasonable attempts will be made to contact the author[s] and obtain this unreported data).

Procedure

Study selection. A systematic literature search was conducted; Abstracts and Titles were systematically reviewed against the established *Inclusion* and *Exclusion Criteria*. Papers meeting these were reviewed in full. References of papers were checked, as was the ACAT website publications page (ACAT, 2017) to ensure that there were no other well-known relevant papers missing. No additional papers were found. Communication was also made with the ACAT community, but no response was obtained. For a detailed breakdown of this process please refer to the results section. Additionally Figure One below provides a flowchart illustrating the selection process.

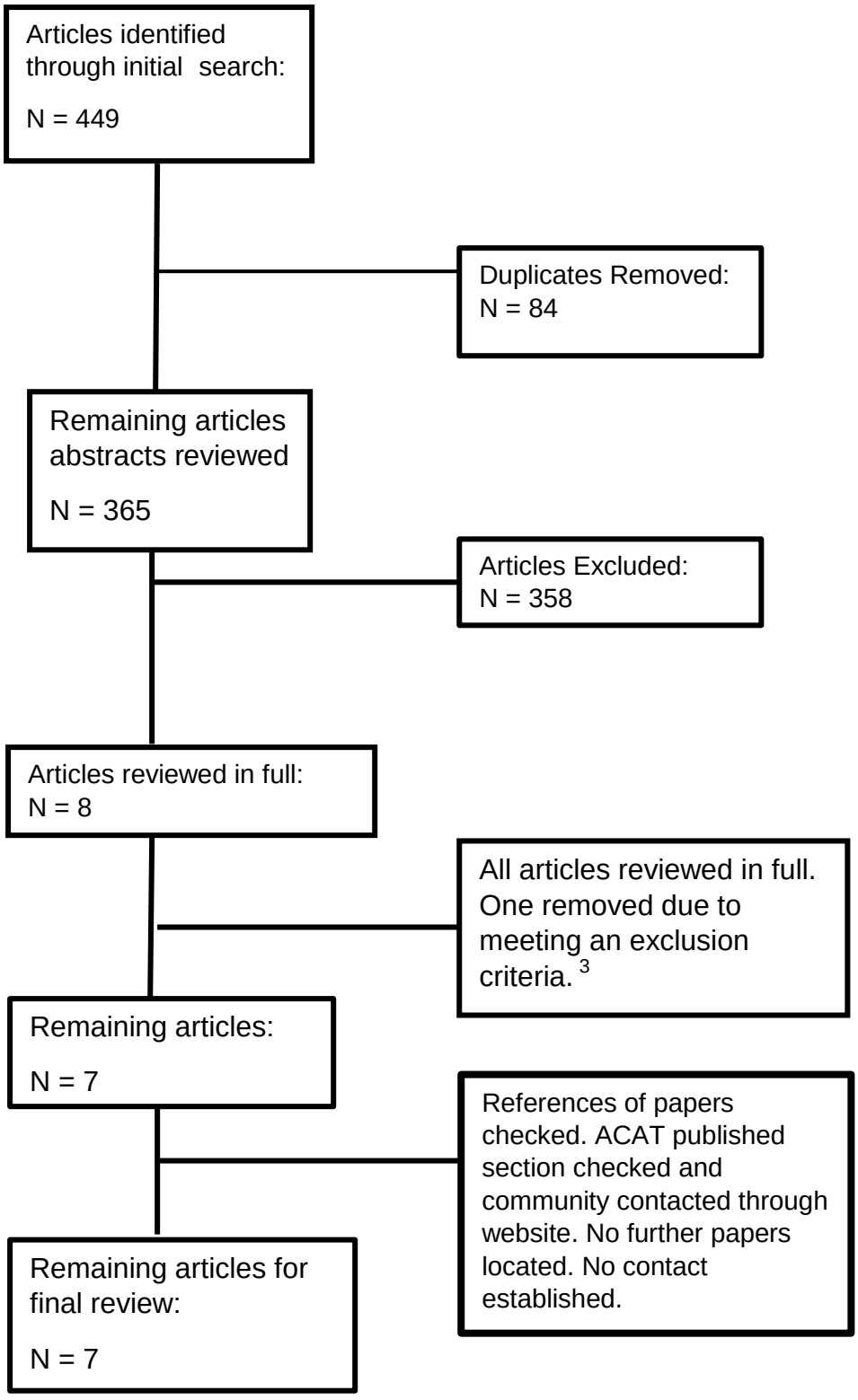

Figure 1. *Flow chart of article selection process.*

[3] Compton-Dickinson, Miller and Adlam (2014) removed due to using an integrated intervention, in line with exclusion criterion.

Data extraction. The following datum for each study was extracted: (1) the number of participants within the study; (2) the population that the study was investigating; (3) the year the study was published; (4) the measures that the study was using; (5) publication date and (6) control group information. Outcome measure data was then grouped into Primary and Secondary Outcomes. Primary Outcomes were those that were most relevant to population. For example, hypothetically, if the study was measuring depression and one of the measures was Beck's Depression Inventory (BDI; Beck, Steer & Brown, 1996), this would be considered for use as a primary outcome measure. In cases where there were multiple measures for the same construct, a measure would be selected based on: its psychometric properties (e.g. considering and comparing published data on validity and reliability data); how established it was; applicability to the client group in question, and perceived objectivity – with observational measures being chosen above self-report measures.

Quality grading. The quality of papers was then assessed using the Critical Appraisal Skills Programme (CASP) RCT checklist (CASP, 2019). Each paper was graded out of a total possible score of 11 for the purposes of internal comparison and to highlight overall strengths and weaknesses across the body of research[5].

Review and meta analysis. Papers were initially reviewed narratively, considering their quality and findings in respect of the research questions above. This was followed by a meta analysis of the papers, investigating the effectiveness of CAT (with respect to the

[5] The scoring of the CASP tool was done for internal comparison purposes, and is not based on an established scoring system/technique.

primary and secondary outcomes). Within a meta analysis, a random or fixed effect model is employed, each based on intrinsic assumptions. The random effects model assumes that the effects for the independent variable (in this case the overall CAT condition) will not be directly correlated with the dependent variable. The fixed effect assumption however, is that it will be. It was anticipated that CAT RCTs evaluated would be characterised by high levels of heterogeneity and therefore a random effects model was employed. Revman 5.3.5 software, provided by Cochrane Community (Cochrane, 2017) was used to conduct the meta-analysis.

Hedges' g (parallel-group) effect sizes were obtained. The software employs the following formula to calculate these:

$$\overline{g} = \frac{\sum w_j g_j}{\sum w_j}$$

Following the above calculations, Forest Plots and the I2 statistic were generated in Revman 5.3. The lower the I2 statistic the lower the heterogeneity; if heterogeneity is lower it means that the data sets being analysed are characterised by greater homogeneity, the degree of similarity between any two or more parts of a data set. Greater homogeneity is a pre-requisite to establishing confidence in the findings of a meta-analysis, e.g, that in this case the CAT group is either having an impact or not, across broadly comparable data-sets. Higgins and Green (2011) outline the following thresholds for I2 statistical analysis: Substantial levels >50%, Moderate levels 30 – 60% and Insignificant <40%. However heterogeneity should also be balanced with other considerations, including the size of an effect.

Risk of bias. A funnel plot free from publication bias indicates normal variation and with enough studies results in a centralized triangle shaped plot. Factors affecting normal variation include: publication bias, fraud and publications that have been delayed (Sterne et al., 2011).

Sensitivity analysis. The following factors were systematically applied for sensitivity analysis:

- Studies at high risk of bias, as informed by quality grading consideration and funnel plot analysis.
- Studies whose Confidence interval (CI) did not overlap with the pooled outcome effect calculation.
- Studies with an active control.

Results

A systematic literature search was conducted, as outlined in the search strategy (see Figure One) The initial search yielded 449 results, which was decreased to 365 following the removal of 84 duplicate papers. Abstracts and titles were systematically reviewed. Eight of those papers were found to broadly meet the Inclusion and Exclusion Criteria. On closer inspection, with all eight papers read in full, one paper was removed on the basis that it used an integrated CAT intervention (combining music therapy and CAT) leaving seven papers in total. References of papers were checked, as was the ACAT website publications page to ensure that there were no other well-known relevant papers missing. It was found that there were not, but that the web page hadn't been modified recently. Therefore a communication was made with the ACAT community, through the organisations contact section in their website (ACAT, 2017), but unfortunately no contact was established.

Study Characteristics

The seven RCTs systematically selected for this review alongside their study characteristics are summarised in Table One below.

Table 1. Quality Criteria and Scoring

Study/Criteria	1	2	3	4	5	6	7	8	9	10	11	Score /11
Evans et al. (2016)	Y	Y	Y	P	Y	N	Y	Y	Y	Y	Y	9.5
Treasure et al. (1995)	Y	P	Y	N	N	Y	P	Y	Y	N	Y	7
Fosbury, Bosley, Ryle Sonsken and Judd (1997)	Y	Y	Y	N	N	Y	Y	Y	Y	P	Y	8.5
Chanen et al. (2008)	Y	Y	Y	N	Y	Y	Y	Y	Y	Y	Y	10
Dare, Eisler, Russell, Treasure, and Dodge (2001)	Y	Y	Y	N	P	N	P	Y	Y	N	Y	6
Clarke, Thomas and James (2013)	Y	P	Y	P	P	Y	Y	Y	Y	Y	Y	8
Kellet, Willbram, Davis and Hardy (2014)	Y	P	Y	P	Y	Y	Y	Y	Y	Y	Y	10
Total Criteria Score:	7	5.5	7	1.5	4	5	5	7	7	4.5	7	

Sample Sizes

Sample sizes ranged from 18 to 99 participants per study, with a total of 270 participants across all of the studies. With the studies combined (including all primary and secondary conditions), there were 159 participants in the CAT condition and 160 participants in the control condition. There were another 43 participants in other conditions that were not included in this study.

Study Designs

All of the selected studies (N = 7) outlined in Table One used RCT designs. Studies were different in their overall foci, with two studies considering the impact of CAT on personality disorders (Borderline Personality Disorder and mixed), two studies considering the impact of CAT upon eating disorders (Anorexia), one study considered the impact of CAT consultancy upon a staff team, and subsequent (indirect) impact upon clients with a primary diagnosis of Schizophrenia, and the remaining study considered the impact of CAT upon clients with Type 1 Diabetes. All of the studies used either passive (N=4) or active (N=3) controls, with one study (Dare, Eisler, Russell, Treasure, & Dodge, 2001) also using alternative intervention comparison conditions.

Intervention Characteristics

All of the studies used individually facilitated intervention. Only one of the studies used a fidelity check (Chanen et al., 2008) and levels of qualification (of the CAT therapist) were varied across studies.

The majority of the seven studies (N= 6) used a direct client approach; one study (Kellet, Wilbram, Davis & Hardy, 2014) considered the indirect impact of a staff consultancy approach upon clients (helping staff to formulate cases using CAT). Due to clear differences this study was also subjected to sensitivity analysis.

Attrition and Completion

All studies included 'intention to treat' data, which was used for analysis purposes. Attrition was relatively low across all studies. All studies were completed, with no early study terminations.

Study Quality

The quality of the remaining seven RCT's was considered using the Critical Appraisal Skills Programme (CASP) RCT Checklist, in which there are 11 criteria. For internal comparison purposes, each study was allocated a score of one point for each criterion met, with half a point for criterion that was partially met. Table One summarises the studies and the overall findings of quality.

The median average was calculated at 8.5 (out of a maximum score of 11). Generally articles were focused in terms of their consideration of outcome and comparison and used high quality concealed randomisation methods that accounted for all participants at the end of the study. Articles scoring below this average were subjected to sensitivity analysis.

Common areas of quality difficulty included a lack of blinding, which is commonly found in psychotherapy research due to inherent difficulties in concealing treatment differences from participants. Other difficulties included a lack of consideration of effect sizes within

articles, making it difficult to quantify effectiveness without further analysis of the original data. A number of the articles didn't consider participant factors that might impact upon outcomes (e.g. social class) and whether these were equally weighted at the start of the trial. It was considered that this might have been a result of relatively low sample sizes used within studies, making such partitioning difficult. In relation to studies that used active controls, a number of the studies didn't consider the equal treatment of groups.

RCT Diagnostic Outcomes

Primary and secondary outcome data were gathered, as outlined in Table Two below, with overall findings briefly reviewed before meta analysis.

Table 2. *Study Characteristics*.

Study	Population and number of Participants	Number of Participants in CAT Group, Control & Other Conditions [6]	Comparison Group description. Active or Passive.	Duration.	Primary and Secondary Outcomes.
Chanen et al. (2008)	Borderline Personality Disorder (N = 86)	44 Allocated to CAT intervention 1:1 Therapy. (prior to baseline assessment). 42 allocated to Control.	Good Clinical Care (GCC) Modular package, designed to control for factors associated with receiving therapy. (Active Control)	24 Months, with 6, 12 and 24 months follow up. 24 CAT sessions	**Primary Measure: Structure Clinical interview for DSM[7] (SCID) II borderline personality disorder dimensional score. Secondary Measure(s): Social & Occupational Functioning Assessment Scale (SOFAS).**

[6] Note that sample sizes in the meta-analysis may be lower due to attrition. Meta-analysis gathered data taken at closest time point to 12 months.
[7] Please Note that DSM stands for Diagnostic and Statistical Manual

Clarke et al. (2013)	Borderline Personality Disorder (N = 99)	50 Allocated to CAT intervention 49 Allocated to Control.	Treatment As Usual (TAU): care from a community mental health team, clinical services and contact with a general practitioner (Passive Control).	10 months	**Primary Measure:** **The median number of Personality Disorders and SD per condition using SKID II** **Secondary Measure(s)** **Core Outcomes In Routime Evalutions -Outcome Measure(CORE)**

Dare et al. (2001)	Anorexia (N =83)	CAT (N = 22) Focal Psychoanalytic Psychotherapy (N = 21). Family Therapy (N = 22) 'Routine' Treatment (N = 18)	(1) A year of focal psychoanalytic psychotherapy (FPP); (2) family therapy (FT) for 1 year — and (3) low contact, 'routine' treatment for 1 year (passive control)	One year. FPP (50 minutes and occurred weekly for 1 year number of sessions). FT: (1 hour to 1 hour 15 minutes, once every 3 weeks. CAT: (50 minutes, occurred weekly for the 1st 20 weeks then monthly for 3 months.)	**Primary Measure:** **The Morgan Russell Scales (1975)** **Secondary Measures:** **N/A**
Fosbury et al.(1997)	Diabetes Type 1 (Poorly Controlled). (N = 2	CAT (N = 10) Diabetes Nurse Special Education (DSNE).	14 to 18 sessions of Diabetes Education by diabetes specialist nurse. Two dropped out.	16 CAT Sessions and 14 to 18 Diabetes Education Sessions, followed by 3 and 9 months follow up.	**Primary Measure:** **Blood glucose control (HbA)** **N/A**

Evans et al. (2016)	Bi-polar disorder. (N = 18)	CAT 24 sessions of 1:1 Therapy. 1 Dropped out.	9 Allocated to treatment as usual (TAU) outpatient psychiatrist appointments, including support and medication. (Passive Control)	24 sessions of CAT followed by a 6 & 12-month follow-up	**Primary Measure(s):** **Bech–Rafaelson Mania Rating Scale (BRMRS) (Bech, Rafaelsen, Kramp, & Bolwig 1978)** **Secondary Measure(s)** **(1) Clinical Outcomes in Routine Evaluation Outcome (CORE-OM) (Evans et al, 2000)** **(2) Work and Social Adjustment Scale (WSAS)**

Kellet et a. (2014)	Patients with a primary diagnosis of Schizophrenia. (N = 20)	CAC a CAT Consultation Model (N = 10)	Treatment as Usual (TAU) (No consultancy). Routine input. (Passive Control)	(1) Baseline team training, (2) case consultation, (3) team supervision and (4) 3-month follow-up.	**Primary Measure(s)** **Clinical Outcomes in Routine Evaluation Outcome Measure (CORE-OM)** **Secondary Measure(s)** **WSAS**
Treasure et al, (1995)	Anorexia (N = 30)	Educational Behaviour Therapy (EBT) N = 16 CAT N = 14	Educational Behavioral Treatment (EBT) Information, education, weight monitoring. (Active Control).	Approx. 20 weeks. Each treatment comprised of 20 weekly, 50 min sessions.	**Primary Measure(s)** **Morgan and Russell (1975) scales**

Personality disorder. Two of the seven papers investigated the impact of CAT on personality disorder: Chanen et al. (2008) and Clarke et al. (2013) and both were scored at the higher end in respect of overall quality. Personality disorder RCT's demonstrated improvements, which were slight in comparison to controls. Studies used larger sample sizes compared to the other areas (N = 99 and 86), however these are still small compared to RCT's in other areas of research. In both studies there were no apparent differences between the active control condition (both focusing on weight gain, education and support by qualified nursing staff) and in both studies, both groups (control and CAT) made improvement.

Anorexia. Two of the seven papers, considered the impact of CAT upon the diagnosis of Anorexia (Dare et al., 2001; Treasure et al., 2005). In both studies, groups made improvements, but differences between control and group were slight and did not reach significance. The papers investigating Anorexia scored at the lower end of quality and as such were subjected to sensitivity analysis checks.

Secondary Measures

Psychological distress. The Core Outcomes In Routine Evaluation Outcome Measure (Core-OM) is a measure of psychological distress and is used trans-diagnostically. It consists of 34 questions and is scored over the four areas of wellbeing, functioning, risk and symptoms. It is a well-established measure, with good reported psychometric

properties (Evans et al., 2000). Clarke et al. (2013) and Evans et al. (2016) reported a significant difference with the CAT group achieving better Outcomes. There were no such differences found by Kellet et al. (2014).

Social and occupational functioning. The Work and Social Adjustment Scale (WSAS; Mundt, Marks, Shear, & Greist, 2002) covers the areas of home, work, social, and recreational domains, with respect to the degree of perceived functioning by client's, in respect to particular health difficulties. Similarly, the SOFAS assesses an individual's social and occupational functioning (Morosini, Magliano, Brambilla, Ugolini, & Pioli, 2000).

Chanen et al. (2008) demonstrated no significant differences between the active-group compared with CAT, with improvements made in both groups on measures of the SOFAS. Kellet et al. (2014) scores for the WSAS indicate a difference between the outcome measures (MD = 3.63, difference of 2.73 SDs). There is however no indication of the effect size or statistical significance status of this difference. Similarly the data provided by Evans, et al. (2016) demonstrates no measureable differences between the CAT and control conditions for the WSAS.

Meta Analysis

With all data grouped in primary and secondary outcomes (as outlined in Table two) a Meta Analysis was conducted comparing CAT to Control across primary and secondary outcomes.

Funnel Plots. Funnel plots were generated in rev man 5.3 (Cochrane, 2017) to consider the presence of bias and outliers. These are outlined in figures two to four below. Funnel plots were visually inspected, all plots demonstrated symmetry, indicating low risk of bias for all outcome measures across the studies.

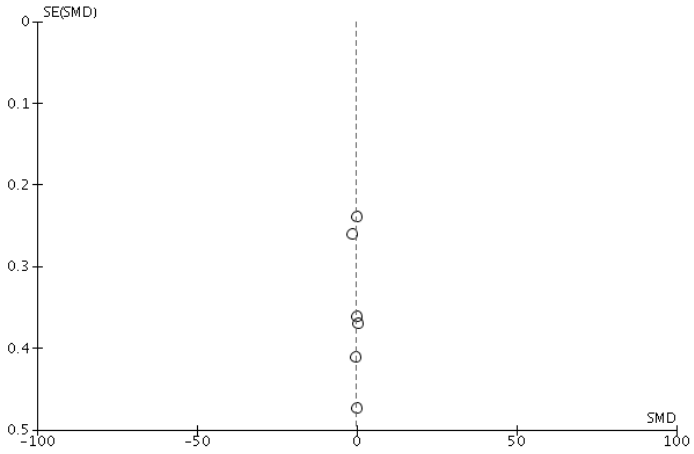

Figure 2. *Funnel plot illustrating risk of bias across primary diagnostic outcomes*

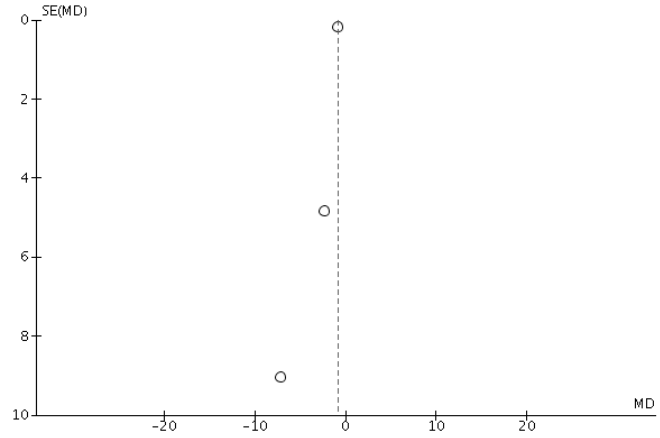

Figure 3. Funnel plot illustrating risk of bias across CORE outcomes

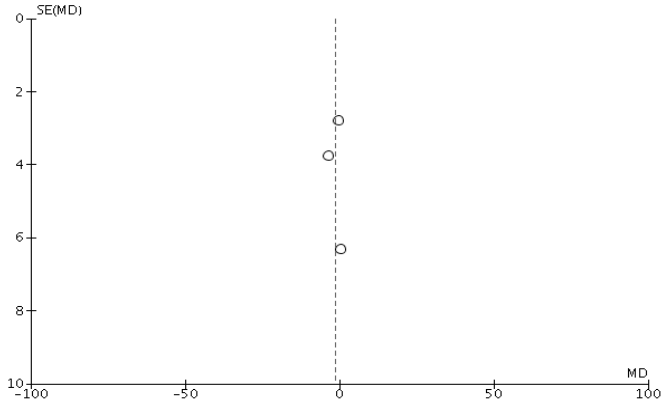

Figure 4. *Funnel plot illustrating risk of bias across occupational functioning outcome.*

Primary Outcomes

A primary outcomes meta-analysis was conducted comparing diagnostic measures across studies. In total there were six studies that could be used for this, with seven sets of results (n = 253) split into the groups[i]: Control VS CAT. The values of each study are outlined in Table Three below.

Table 3. *Meta-Analysis comparison of Primary Outcomes*.

Study	***CAT***			***Control***				
	M	***SD***	***N***	***M***	***S D***	***N***	***Weight (%)***	***SMD***
Evans et al. (2016)	13.78	12.27	9	11.78	10.46	9	14.4	0.17 [-0.76, 1.09]
Fosbury et al. (1997)	10.1	1.5	10	10.9	1.5	16	15.6	-0.52 [-1.32, 0.29]
Treasure et al. (1995)	6.4	2.8	14	7.3	2.7	16	16.3	-0.32 [-1.04, 0.40]
Dare et al. (2001)	0.16	1.48	14	0.02	1.74	17	16.5	0.08 [-0.62, 0.79]
Clarke et al. (2013)	1.0	1.74	38	4.0	2.1	40	18.4	-1.54 [-2.04, -1.03]
Chanen et al, (2008)	17.97	3.61	36	18.38	4.13	34	18.7	-0.10 [-0.57, 0.36]
Total (95% CI)			121			132	100	-0.29 [-0.92, 0.34]

Results indicated a non-significant and small, pooled effect size (*g*=0.29; 95% CIs [0.92, 0.34]; *Z*= 0.91, *p*= 0.36) favouring CAT. Outcomes demonstrated high levels of heterogeneity (I^2=82%), Sensitivity analyses were conducted with the following studies removed: Treasure et al. (1995); Dare et al. (2001); Fosbury et al. (1997). The effect increased in size, but remained non-significant, increasing to *g*= 0.52 (95% CIs [-1.61, 0.56]; *Z*= 0.95, *p*=0.34).

Following this, studies with the same populations were compared. Due to the small number of studies, there were only two groups (with two studies in each group), two studies with an anorexia nervosa population and the other two with a personality disorder population.

Group 1 - Personality Disorder. For the first group, personality disorder (Table Four), results indicated a non-significant and large pooled effect size (*g*= - 1.84; 95% CIs [0.92, 0.34]; *Z*= 0.91, *p*= 0.44) favouring CAT. Outcomes demonstrated high levels of heterogeneity (I^2=84%). Due to the small number of studies, it was not possible to remove studies from the analysis for pre and post-sensitive comparison, however sensitivity analysis considerations were made: Both studies were low risk of bias based on quality scores (see Table Five) Both studies' CIs overlapped with the pooled estimate effect CI. Chanen et al. (2008), used an active control group, whereas Clarke et al. (2013) used a passive control.

Table 4. *Meta-Analysis comparison of Personality Disorder Outcomes*

Study	CAT M	CAT SD	CAT N	Control M	Control SD	Control N	Weight (%)	SMD
Clarke et al. (2013)	1.0	1.74	38	4.0	2.1	40	55	-3.00 [-3.85, -1.03]
Chanen et al. (2008)	17.97	3.61	36	18.38	4.13	34	45	-0.10 [-0.57, 0.36]
			74			74		-0.82 [-2.22, 0.59]

Table 5. *Meta analysis comparison of anorexia primary outcomes.*

Study	**CAT**			**Control**				
	M	**SD**	**N**	**M**	**SD**	**N**	**Weight** (%)	**SMD**
Treasure (1995)	6.4	2.8	14	7.3	2.7	16	49.0	-0.32 [-1.04, 0.40]
Dare, Eisler, Russell, Treasure, & Dodge (2001)	0.16	1.48	14	0.02	1.74	17	51.0	0.08 [-0.62, 0.79]
Total (95% CI)			121			132	100	0.20 [-0.31, 0.70]

Group 2 - Anorexia Nervosa. In the anorexia nervosa group, studies used the Morgan and Russell Scales (Morgan & Hayward, 1988) to measure improvement across a range of factors relating to anorexia, including improvement in weight and nutrition. Results (Table Six) indicated a non-significant and small pooled effect size (*g*= 0.11; 95% CIs [-0.62, 0.39]; *Z*= 0.44, *p*= 0.66) favouring CAT. Outcomes demonstrated a low level of heterogeneity (I^2=0%). As with the previous comparison, it was not possible to remove studies from the analysis for pre and post-sensitive comparison, due to the limited number of available studies. As with the previous group, sensitivity analysis considerations were made: both studies indicated a risk of bias due to low quality ratings. Both studies CI's overlapped with the pooled estimate effect CI and both used an active control.

Table 6. *Meta analytic comparison of psychological distress measures (CORE – OM)*

Study	**CAT**			**Control**				
	M	**SD**	**N**	**M**	**SD**	**N**	**Weight** (%)	**SMD**
Clarke et al. (2013)	1.7	0.89	38	2.53	0.63	40	49.9%	-1.07 [-1.55, -0.59]
Kellet et al. (2014)	35.14	23.07	8	42.25	11.53	9	24.4	-0.38 [-0.1.34, 0.59]
Evans et al, (2016)	13.33	10.72	9	15.66	9.78	9	25.7	-0.22 [-1.14, 0.71]
Total (95% CI)			55			58	100	- 0.68 [-1.26, - 0.1]

Secondary Outcomes

Group 1 - Psychological Distress. Studies employing the CORE – OM (Evans et al., 2000) were combined for meta-analysis. Results (See Table Seven below) indicated a significant and large pooled effect size (*g*= 0.68; 95% CIs [-1.26, -0.10]; *Z*= 3.74, *p*= < 0.05) favouring CAT. Outcomes demonstrated a moderate level of heterogeneity (I^2=43%). As with the previous group: sensitivity analysis comparisons were made. One paper (Kellet, et al., 2014) was removed from analysis for sensitivity analysis due to differences notes in the intervention (indirect). Results then indicated an increased, large, non-significant effect size, with increased heterogeneity (g = 0.74; 95% CIs [-1.56, 0.08]; Z = 1.78, p = 0.08) (I2 = 61%). It was noted that this outcome was near to significance. The significant weighting differences (see Table Seven) should lead to caution being taken before any analytical conclusions are drawn.

Table 7. *Meta analysis comparison of Social and Occupational Functioning Outcomes.*

Study	**CAT**			**Control**				
	M	**SD**	**N**	**M**	**SD**	**N**	**Weight** (%)	**SMD**
Chanen et al. (2008)	1.7	0.89	38	2.53	0.63	40	49.9%	-1.07 [-1.55, -0.59]
Evans et al. (2016)	35.14	23.07	8	42.25	11.53	9	24.4	-0.38 [-0.1.34, 0.59]
Kellet et al. (2014)	13.33	10.72	9	15.66	9.78	9	25.7	-0.22 [-1.14, 0.71]
Total (95% CI)			53			52	100.0	-0.09 [-0.47, 0.30]

Group 2 - Occupational Functioning. Studies employing occupational functioning measures were combined for meta-analysis. Results (see Table seven) indicated a non – significant and large effect size estimate (*g*= - 0.65; 95% CIs [- 5.82, 2.85]; *Z*= 3.74, *p*= <0.54) favouring CAT. Outcomes demonstrated a low level of heterogeneity (I^2=0%). Sensitivity analysis comparisons were made. (Kellet et al., 2014) study was removed on the basis of it being rated as high risk of bias. This resulted in a decreased, small non-significant effect size (g = -0.24 [-5.24, 4.77]; Z = 0.09, p = 0.93) in favour of intervention.

Discussion

A systematic review identifying seven RCT's articles was conducted, considering the effectiveness of CAT therapy upon primary and secondary outcome measures. Primary measures pertained to the diagnostic populations of the participants, and included: Personality Disorder, Anorexia, Diabetes and Type One Diabetes. Secondary measures pertained to common outcome foci across studies, which included psychological distress, and occupational functioning.

What is the Overall Quality of CAT RCT's Contained in the Systematic Review?

CASP quality criteria were applied systematically to all of the articles with a scoring system applied for internal comparison. It was found that overall quality was fairly high with a median outcome of 8.5 out of a maximum score of 11. Two papers were subjected to sensitivity analysis on the basis of lower quality. Funnel plots were symmetrical indicating a low risk of publication bias. Another key quality factor that was noted was the small sample sizes of research papers.

What is The Overall Effectiveness of CAT Therapy across all Primary Outcomes?

Results indicated a non-significant and small pooled effect size (g=0.29; 95% CIs [0.92, 0.34]; Z= 0.91, p= 0.36) favouring CAT. Outcomes demonstrated high levels of heterogeneity (I^2=82%), Sensitivity analyses were conducted, resulting in an effect increased in size, but remained non-significant with high heterogeneity, increasing to g=0.52 upon removal of studies with high-level of bias, active controls and overlapping confidence intervals, (95% CIs [-1.61, 0.56]; Z= 0.95, p=0.34). (I = 85%).

Initial findings indicate that CAT cannot be considered to be an effective intervention across a wide range of diagnostic categories, as indicated by the non-significant and small pooled effect size. However these findings should be treated with significant caution due to a number of factors potentially impacting upon these findings, including high heterogeneity, likely relating to intrinsic differences in the outcomes being measured, with primary outcomes branching across a range of diagnostic categories and measures. Diagnostic categories were also under-represented with a number of populations only represented by one or two studies.

Personality disorder. For the personality disorder studies, primary outcomes results indicated a non-significant large pooled effect size (g= - 1.84; 95% CIs [0.92, 0.34]; Z= 0.91, p= 0.44) favouring CAT. Outcomes demonstrated high levels of heterogeneity (I^2=84%).

Results would initially indicate that CAT is not effective for personality disorder outcomes due to the level of insignificance. However, a number of factors including the large pooled effect size and level of heterogeneity indicate such findings should be taken with caution. Both studies in this sample used the same outcome measure, but differently, with one study using median number of diagnoses and another using the dimensional (interval score) for the same measure. Additionally it was not possible to control for one of the two studies using an active control. Overall the high effect size, although inconclusive is a promising indication that CAT may be an effective intervention for personality disorder, which corroborates the findings of Calvert & Kellet, (2014).

Anorexia. Results indicated a non-significant and small pooled effect (*g*= 0.11; 95% CIs 0.62, 0.39]; *Z*= 0.44, *p*= 0.66) favouring CAT. Outcomes demonstrated a low level of heterogeneity (I^2=0%).

Results initially indicate that CAT is not an effective intervention for Anorexia. However, these findings should be treated with caution. Both control groups used an active control, meaning the comparison is against other active interventions for this client group (e.g. weight monitoring and support) with neither of studies accounting for overlap or differences in the way the groups were treated (e.g. common factors).

Psychological distress. Results indicated a significant, large pooled effect size (*g*= 0.68; 95% CIs [- 1.26, -0.10]; *Z*= 3.74, *p*= < 0.05) favouring CAT. Outcomes demonstrated a low level of heterogeneity (I^2=0%). One paper (Kellet et al., 2014) was removed from analysis for sensitivity analysis due to differences notes in the intervention. Results then indicated an increased, large, non-significant effect size, with increased heterogeneity (g = 0.74; 95% CIs [- 1.56, 0.08]; Z = 1.78, p = 0.08) (I2 = 61%).

Initial findings indicate that CAT is an effective intervention for reducing psychological distress across a range of diagnostic categories. However findings should be treated with caution due to sensitivity considerations and substantial weighting differences between the studies.

Occupational and social functioning. Results indicated a non-significant and large - pooled effect size estimate (*g*= - 0.65; 95% Cls 5.82, 2.85]; *Z*= 3.74, *p*= <0.54) favouring CAT.

Outcomes demonstrated a low level of heterogeneity (I^2=0%). Results would initially indicate that CAT is not effective for improving social and occupational functioning

Across all outcomes, analyses favoured intervention above control (active and passive) with varying effect sizes and levels of heterogeneity indicating that CAT may be an effective intervention for a range of difficulties, with particularly promising results for the personality disorder population data. All results outlined were non-significant with the exception of psychological distress, which was initially significant and then reduced to a near significant result following sensitivity analysis (and removal of a study). The small sample sizes and small number of studies mean that all findings should be treated cautiously. Further research is required to facilitate a clearer understanding of the potential effectiveness of CAT and for whom it is most effective.

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Journal Paper[8]

[8] The journal paper has been prepared for the Journal of Clinical Psychology and has thus been formatted in accordance with their submission guidelines (Appendix A). Exceptions to this include the placement of tables for the purposes of thesis assessment. Please note that the journal does not outline a word count limit (with the exception of the abstract for which the guidelines allow a 150 word limit) and therefore the Trent Doctorate prescribed limit of 8000 applies. Footnotes are used to make links to the Extended Paper.

Is the Delivery of Psychological Formulation Associated with Proximal Changes in Working Alliance and Verbal Engagement?: A Mixed Methods, Case Series Analysis.

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Key Words: Clinical Formulation, Psychological Formulation, Cognitive Behaviour Therapy, Case Conceptualisation, Working Alliance.

Abstract

Objectives

This paper investigates formulation delivery and its potential association with working alliance and client engagement.

Methods

Audio recordings of cognitive behaviour therapy were analysed. A working alliance measure was employed to rate pre and post-formulation working alliance, with data analysed for trends. Framework analysis was used to categorise post-formulation verbal responses. Potential associations between post-formulation verbal engagement and alliance responsivity with wider therapy outcomes were also explored.

Results

Visual analysis (aided by quantitative decision criteria) found a small and uncertain negative association between formulation-delivery and proximal measures of working-alliance for all cases. Categories of *engage, disengage* and *neutral* were identified as post-formulation responses, with responses broadly characterised by engagement. A broad positive association was identified between post-formulation verbal engagement and wider-therapy outcomes.

Discussion

This study examined in-session therapist-formulations in terms of (1) immediate client responses and (2) whether there are formulation-contingent changes in therapist-client alliance. Findings are discussed.

Introduction

Psychological formulation is a key professional proficiency for clinical psychologists (CPs; Health Care Professionals Council [HCPC, 2009]). Formulation is also a central tenet of Cognitive Behavioural Therapy (CBT; Dudley & Kuyken, 2013), which is the primary evidence-based model for psychotherapeutic intervention in contemporary clinical practice (Guadiano, 2008).[9]

Characteristics and Claimed Benefits of Formulation[10]

The British Psychological Society (BPS, 2011) list several key characteristics of a formulation, stating that a formulation should: summarise a client's key difficulties, with links made to psychological theory; identify the development and maintenance of those difficulties; account for specific situational examples of key difficulties and be falsifiable and open to revision.

Congruent with the BPS summary, CBT formulations draw upon cognitive behavioural theory to articulate an explanatory account of clinical phenomena e.g. depression. Key factors hypothesised to be involved in the onset, development and maintenance of those phenomena may be identified and synthesised within a CBT formulation (Johnstone & Dallos, 2013). At a descriptive level, CBT formulations identify topographical information of concern, e.g. contextual factors such as salient locations, scenarios and events wherein the presenting clinical difficulty occurs. CBT formulations specify a range of overt behaviours and private phenomena, such as emotions and physiological responses. At an inferential level CBT formulations emphasise the mediating, or moderating influence of cognitions upon feelings and behaviour (Westbrook, Kennerley & Kirk, 2011).

A commonly outlined benefit of formulation by authors affiliated with different psychotherapy modalities including CBT, is the impact of formulation upon 'working alliance', with claims that formulation enhances working alliance via shared understanding,

[9] See Extended Paper Section 2 : CBT
[10] See extended paper section 1.3: Claimed Benefits and Utilities of Formulation

insight and validation (e.g. Ryle & Kerr, 2002). Bordin (1979) defined working alliance as the integration of 'task' (e.g. in session tasks such as imaginal exposure), 'bond' (positive attachment between the therapist and the client) and 'goals' (target foci of the agreed intervention).

Extant Research and Evidence Base

However, despite these claims and whilst formulation is considered a central proficiency of CPs, and a core component of CBT, there is a paucity of research evidence demonstrating these claimed benefits[11]. Fundamentally there is a scarcity of evidence of either the contributions of CPs or the efficacy of CBT to facilitate beneficial formulation based processes. Much of the research on formulation has focused on formulation content, such as the reliability, validity and quality of formulations[12] rather than their impact or association upon/with therapy processes (Bieling & Kuyken, 2003). The body of literature in this area is characterised by a sparse number of publications lacking in power and often lacking adequate control conditions[13]. Qualitative studies of individual experiences of formulation sharing have outlined mixed reports, both positive (e.g. reporting increased understanding) and negative (e.g. reporting feeling overwhelmed), highlighting the importance of contextual factors such as working alliance (Redhead, Johnstone & Nightingale, 2015). Parallel-group studies wherein formulation led approaches are compared to manualised treatments have been equivocal (BPS, 2011). However, the simplistic notion of formulation sharing in psychotherapy leading to improved therapy outcomes, fails to take account of, or adequately control for potential intermediary processes. For instance, the important role of working alliance and other client and therapist factors[14]. It is also possible that the research described may have conflated formulation with non-formulation conditions and failed to sufficiently isolate formulation processes.

'Common factors' research investigating moderators of outcome in therapy have demonstrated repeatedly that working alliance is associated with therapy outcome

[11] See extended paper section 8: Outcomes/Impact of Formulation
[12] See extended paper section 4: Top Down and Bottom up Research
[13] See extended paper section 8: Outcomes/Impact of Formulation
[14] See extended paper section 5: Potential Moderators of Formulation

(Flückiger, Del Re, Wampold, & Horvath, 2018).[15] The important role of working alliance with therapy, often referred to interchangeably with 'therapeutic alliance', has a long history in psychotherapy literature (Horvath, & Luborsky, 1993). Wampold & Imel, (2015) referring to common factors identified in meta analytic studies, theorises that the rationale provided by the therapist for the client's difficulties potentiates client 'expectation' (another common factor) and working alliance, providing the explanation of therapeutic tasks is sufficiently compelling (Wampold & Imel, 2015). Wampold claims this working alliance provides the basis of agreement of tasks and goals, wherein the client will engage within more adaptive behaviours associated with therapeutic progress (Wampold & Imel, 2015).

Existing studies of the impact of formulation upon working alliance in CBT (including third-wave approaches) are briefly summarised here. Nattrass, Kellet, Hardy and Ricketts (2015) conducted a CBT therapy as usual with 29 participants with a diagnosis of Obsessive Compulsive Disorder. When comparing the formulation phase to the pre and post-formulation phases, the formulation phase was found to have a significant impact upon distress reduction and working alliance. A significant limitation of this study was that there was no control condition or effect sizes reported. Other CBT parallel group studies, including Chadwick, Williams, and Mackenzie (2003), have failed to find an effect of formulation upon working alliance, with such studies again lacking controls and recruiting small samples. Given the multiplicity of factors and pragmatic difficulties in organising sufficiently powered research to investigate formulation processes, an alternative approach worthy of consideration is a single case design (SCD) method. Within an SCD the participant acts as their own control, with dependent variables assessed repeatedly over time, at baseline (pre-intervention), intervention and post-intervention phases. The SCD allows researchers to ascertain the presence of causal relationships between manipulated independent variables and dependent variables. It also facilitates examination of temporal associations between non-manipulated variables. It is therefore possible to identify temporal relationships between variables not under experimental control, which is not possible in cross-sectional designs. For instance, an SCD could enable examination of the effects of introducing a product formulation (independent variable) in terms of changes in a dependent variable (e.g. client understanding of difficulties) from pre to post-formulation. This potential to capture naturally occurring relationships renders SCD a particularly well

[15] See Extended Paper Section 3: Common Factors

suited method for measuring discrete psychotherapy processes such as formulation (Smith, 2012). Shine and Westacott (2010) and Evans and Parry, (1996) used SCD methods to evaluate the impact of formulation upon working alliance and other outcomes of therapy, but failed to detect any replicable impact of formulation activity. However, both studies considered formulation at a sessional level, addressing hypotheses concerning the sessions in which product formulations were delivered. It is foreseeable that the sessional measures used in these studies, including those for working alliance, may not have been sufficiently focused to isolate and capture the hypothesised impact(s) of formulation activity. Formulation activity would foreseeably be better observed (at least for initial identification) within sessions, addressing client engagement immediately after formulation delivery. This may be harder to track at a between-sessions level of analysis.

The overall lack of demonstrable effects of formulation may be accounted for by the following possibilities: (1) the different approaches and unsuitability of the methods used to capture the impact of formulation upon dependent variables (e.g., lack of controls or power leading to equivocal or spurious findings); (2) inappropriate proximity of the measures used following formulation activity, (e.g. immediacy of measurement); (3) different operationalisations of formulation, and (4) unhelpful conceptualisations of the beneficial function(s) of formulation. In relation to the latter, Shine and Westacott (2010) considered that separating specific instantiations of formulation activity from other aspects of therapy pertaining to the formulation (e.g., unstructured discussion) was not helpful. Beiling and Kuyken (2003) express that formulation may have more utility in guiding a practitioner in their selection and use of a specific approach taken towards therapy.

Additionally, considering the emphasis placed upon collaboration and alliance as part of good formulation practice (e.g. BPS, 2011), it is foreseeable that disentangling the therapeutic impact of formulation upon alliance, as a distinct independent variable from general collaborative activity would be problematic. It is also likely that gaining an understanding of the impact of formulation upon working alliance has been confounded by the use of self-report data often used in formulation research, due to its high levels of subjectivity, e.g. self-report working alliance measures of the therapist and client and interviews/questionnaires regarding the perceived impact of formulation. Whilst there are obvious clinical benefits and various epistemological justifications for using these approaches, alternative (and complimentary) methods worthy of consideration are the use of observational methods of working alliance that can be subjected to independent reliability

checks. As well as measures of overt behaviour, e.g. verbal engagement and disengagement behaviours, potentially associated with formulation.

Visual analysis is the most prominent approach within the SCD literature for evaluating clinical phenomena of interest (Smith, 2012). Pre and post-treatment phases are typically compared in this approach, within and across participant cases. What Works Clearing House (2019) have outlined a well-established set of replicability criteria in order for an effect to be demonstrated. These include the requirements of an established baseline, free from trend or variance and three independent demonstrations of an effect.

In addition to the use of visual analysis, guidelines and methods have been developed to represent effects within SCD research quantitatively for the purposes of comparison. One such method is the use of non-overlap of all pairs (NAP). NAP is a representation of the degree of data overlap between distinct phases within SCDs and a well-established method for comparison of pre-intervention and intervention phases (e.g. A versus B or AB; Parker & Vannest, 2009).[16]

Research Aims

The purpose of this research was to examine potential impacts of formulation-delivery on therapeutic processes within the specific context of CBT, using Antecedent Behaviour Consequence (ABC) formulations (Ellis, 1977) and, due to methodological concerns raised above regarding both the subjectivity and immediacy of measures in the literature, using within-session observational methods to address working alliance and verbal engagement. These measures were employed with a view to capturing potential trends of improvement and/or deterioration immediately following therapist formulation delivery, upon measures of working alliance and engagement.

ABC formulations (Ellis, 1977) identified in the data had to contain all three of the ABC components: an Activating event, Belief, and Consequential feelings and/or behaviours, in order to qualify as a formulation.

[16] Further detailed explanation of NAP is provided in the Methods and Data Analysis sections of the journal paper below.

Direct effects. Direct effects of ABC formulation delivery were hypothesised to include brief (generally positive) changes to the trajectory of the client-therapist working alliance and an increase in client engagement behaviours.

Indirect effects. The focus of this research study was upon the proximal impact of formulation e.g. immediate activity following formulations. The methods chosen were short-term in their focus and did not facilitate reliable conclusions about the wider impact of formulations (e.g. whether proximal changes found to be associated with formulation were associated with outcomes of therapy such as symptom reduction), however, these potential broader associations were explored.

Primary Research Questions

1) Is there a temporal association between the presentation of ABC, CBT formulations upon observational, proximal within-session measures of therapeutic working alliance, post-ABC formulation delivery?
2) Can client's immediate verbal responses to within-session therapist delivered formulations be reliably coded in terms of engagement and disengagement?
3) Are client's immediate responses to within-session formulations broadly characterised by engagement or disengagement?[17]

Exploratory Question[18]

4) Across cases, is greater positive responsivity to formulations (as determined by higher working alliance scores and engagement versus disengagement) broadly associated with greater improvement in wider-therapy outcomes?

Method[19]

Ethics.

Ethical permissions for a secondary analysis of this data were granted by the University of Lincoln, School of Psychology Research Ethics Committee (SOPREC) and the Health Research Authority (HRA).[20]

Data Set. The data set used for this project was obtained with permission from a therapist-researcher who had conducted CBT for depression, using an ABC framework to provide formulations.

Patient Characteristics. Inclusion criteria for the original study (Daniels, Gresswell, Dawson & Braham 2018) from which data was obtained, included the following, participants were required to be:

- currently referred and engaged with a local community mental health team;
- aged 18 to 65;
- considered to be experiencing low mood or diagnosed with depression;
- capacitous to participate;
- able to speak English.

The only exclusion criterion applied to clients was if they were deemed to be currently suicidal or at risk of harm (to self or others).

There were five participants in the original study sample, three of which provided permission for re-analysis purposes (see eight for demographics). Following removal of two of the participants from the original data set, the mean age of participants was 44.66, with a range of 35 to 60. Participants had different diagnoses (see table eight), however, in line with the inclusion criteria the primary purpose and goal of therapy was to focus upon improving mood.

[19] See extended paper section 7: Method.
[20] See extended paper section 7.3: Ethics.

.

Table 8.

Participant Demographics

Participant	Pseudonym	Gender	Age	Diagnosis	Medication	Nationality	Work Status	Marriage Status	Previous Therapy
1	Louise	F	35	BPD	Antidepressant	White British	Unemployed	Married	CBT
2	Julie	F	60	Bipolar Disorder	Antidepressant & Mood-Stabiliser	White British	Retired	Married	None
3	Amy	F	39	BPD	Antidepressant	White British	Unemployed	Separated	Counselling

BPD Means Borderline Personality Disorder

Structure of intervention. The structure of the CBT intervention was provided by the therapist-researcher (a trainee clinical psychologist). This was under the supervision of a qualified clinical psychologist who provided 90 minutes of supervision per week to oversee the work. The structure of the intervention was as follows: assessment was conducted in sessions one and two; a product formulation was presented in session three; goals were set in session four; CBT specific techniques such as behavioural activation were covered in session five and six; a product formulation was presented again in session seven and in session eight progress was reviewed and relapse prevention was attended to (Daniels et al., 2018).

Sessions of CBT were delivered within an outpatient setting for two of the clients and in the client's home for the third due to access restrictions to the hospital. Sessions lasted approximately 50 minutes. Data collected for the original study included: audio recordings of each session, outcome measures (see methods section) and change interview transcripts.

Fidelity checks. The Cognitive Therapy Rating Scale (CTRS; Young & Beck, 1980) is a well-established rating scale, utilised by the therapist-researcher as a means of assessing adherence to the principles of Cognitive Therapy for Depression (Beck, Rush, Shaw & Emery, 1979). The CTRS was completed by the therapist-researcher during a review of audio sessions. The therapist researcher's supervisor used the CTRS to rate 12% of all therapy sessions. This was considered to be sufficiently in line with recommended levels for a secondary rata, including David, Szentagotai, Lupu, and Cosman (2008) who recommend 15%. Level of fidelity adherence was rated at .88 (alpha). The intervention delivered was CBT for depression and was based on a Beckian approach (Beck et al., 1979) which emphasises the mediating role of cognitions in low mood, particularly negative cognitions regarding the self, the world and the future. Additionally, the maintaining role of behaviour was focused upon e.g. low levels of activity affecting mood by reducing opportunities for rewarding experiences, in turn precluding opportunities to revise negative cognitions.

Formulation delivery. The therapist-researcher outlined that formulations were provided for the purpose of supporting client's understanding of their presenting difficulties. The formulations summarised and clarified issues discussed. Congruent with the aims of

this research all of the process formulations used the ABC format outlined[21]. ABC formulations were delivered in a conversational manner during sessions, typically to summarise, reiterate and clarify the details of client experiences as they were hypothesised to be mediated by their cognitions.[22]

Measures

Participants completed the following weekly measures (see table nine for psychometric properties/additional details). Measures included: the Working Alliance Inventory – Short Form – Client and Therapist Version(s) (WAI-SF;Tracey & Kokotovic, 1989) to measure working alliance from both a client and therapist perspective; the Patient-Reported Outcome Measures Information – Short Form (PROMIS-SF; Cella et al., 2010); the Mental Health Continuum - Short Form (MHC-SF; Keyes, 2002) a measure of wellbeing and the Core Outcome Measure (CORE-OM; Evans et al., 2002) a measure of clinical outcomes of interest, including symptoms, risk and functioning. Scores from all of these measures were used in addressing research question four (*across cases, is greater positive responsivity to formulations [as determined by higher working alliance scores and engagement versus disengagement] broadly associated with greater improvement in wider-therapy outcomes?).* In addition to using existing data obtained via the measures outlined above from the original study, additional observational and qualitative methods were used for the purpose of assessing post-formulation working alliance and verbal response behaviour. These are outlined below.

[21] Whist not a focus of this study, for context it should be noted that product formulations were also delivered twice during therapy, in sessions three and seven. For the purposes of the research outlined in this paper the 'product' formulations were operationalised as Beck's longitudinal formulation (Beck & Beck, 1995).

[22] See extended section 10.5: The Use of Formulations in This Process.

Table 9.

Measures used in original study including construct measures, items and psychometric properties

MEASURE	Construct Measured	Items	Scale	Data Yielded	Psychometric Properties
WAI-SF; CLIENT VERSION TRACEY & KOKOTOVITZ (1989)	Working Alliance from the client and therapist perspective underpinned by Bordin's conceptualisation of working alliance (Bordin, 1979). Measures across three separate domains of bond task and goal.	12 self- report items	1-7	Three scores for three separate domains of: Bond; Task and Goal. Range of Scores: 12 to 84 Directionality: Higher scores indicate stronger alliance.	Internal consistency (Cronbachs Alpha α) was high across sub domains: Task = .82 (client) .90 (therapist) Goal = .86 (client) .90 (therapist) Bond = .83 (client) .86 (therapist) Strong Convergent validity with full scale WAI (Busseri & Tyler, 2003).
PROMIS DEPRESSION – SF (CELLA ET AL., 2010)	Measure of depression.	Eight self-report Items	1–5	Scores converted into T scores. Increases in score indicative of increase of depression.	Strong Internal consistency (Cronbachs Alpha) α: 0.93 (Kroenke, Yu, Wu, Kean & Monahan, 2014). Convergent validity demonstrated with strong correlations when compared with well-established depression measures. (Kroenke, Yu, Wu, Kean, & Monahan (2014)
CORE-OM (EVANS ET AL., 2002)	Combined measure of clinical outcomes.	34 self-report Items 4 Domains of: Problems, Symptoms, Risk, and Wellbeing.	1-5 Range 0 – 10.	Increased score indicates increased clinical difficulties e.g., decreased wellbeing, increased risk etc.	Good Internal Consistency: Cronbachs Alpha α: 0.75-0.95. Strong sensitivity to clinical and non-clinical scoring. Good convergent reliability with other established measures of clinical distress. (Evans et al., 2002).
MHC-SF (KEYES, 2002)	Measure of wellbeing.	14 self-report Items. Three domains of emotional, psychological and social wellbeing.	1–6	Increased scores indicate improved wellbeing.	Good internal consistency (Cronbachs Alpha α) >.80 (Keyes, 2005). Good convergent reliability with other measures of wellbeing. (Keyes, 2007).

MHC – SF = Mental Health Continuum Short Form
Core-OM = Clinical Outcome Measure
WAI – SF = Working Alliance Inventory Short Form
PROMIS Depression – SF = Patient Reported Outcome Measures Information – Short Form

Framework Analysis[23]

Framework analysis was selected due to its practical, a-theoretical approach and flexibility in developing a contextual understanding of the form and content of datasets (Ritchie & Spencer, 1994). This method was considered to compliment the researcher's critical realist epistemological stance[24]. Within framework analysis, categories of interest provide an a priori analytic frame that guides data gathering and deductive analysis. This includes analysis of the congruency of the data-set with the categories of interest and associated theory driven hypotheses and assumptions, whilst also allowing for secondary data-driven analysis to inductively identify more specific examples or sub-categories. This may lead to a revision or complete nullification of a priori assumptions/categories of interest and establishment of additional or alternative primary categories to define, arrange and facilitate understanding of the data-set.

Framework analysis was used to critically address the broad hypothesis that verbal responses to formulation could be reliably categorised in terms of engagement and disengagement, post-formulation delivery (research question two). This was used with attention also given to additional/alternative categories identified through inductive analysis[25]. The stages of framework analysis are: (1) familiarisation; (2) identifying a framework; (3) indexing; (4) charting; and (5) mapping and interpretation (Ritchie & Spencer, 1994). Table ten below outlines an overview of the application of this process as applied to the data. A detailed account of this process including an outline of quality checks (including inter-rater reliability) and validation of identified categories is provided in the section entitled *Data Analysis* below.

Segmented Working Alliance Inventory Observer-Based Measure (S-WAI-O)

The Segmented Working Alliance Inventory Observer-Based Measure (S-WAI-O; Berk, Safran, Muran & Eubanks-Carter, [2010])is an observational measure of working alliance, based on the conceptualisation of working alliance outlined above by Bordin (1979). It was used to measure working alliance immediately before and after therapist formulation delivery to address research question one regarding therapist delivered

[23] See Extended Paper. Section 7.2 Framework Analysis.
[24] See Extended Paper. Section 7.1 Epistemological Stance.

formulations and a potential association with working alliance. The authors of the S-WAI-O advise that ratings should be made by coders in five minute segments (Berk et al., 2010). The focus of the S-WAI-O tool upon segments within therapy sessions renders it apt to detect within-session changes in working alliance. Specifically, the S-WAI-O was selected for measuring working alliance at two points for each formulation. Firstly, within the pre-formulation condition, measuring working alliance in the five minutes segment leading up to each instance of an ABC formulation. Secondly in the post-formulation condition, measuring working alliance in the five minutes segment following each instance of an ABC formulation.

As this was a secondary-analysis it was established with the therapist-researcher from the original study prior to analysis, that a large number of suitable ABC formulations were available within the data-set. It was considered that this provided a ripe opportunity for a large number of pre and post-formulation comparisons, constrained to a well operationalised formulation framework of ABC formulations. These ABC formulations delivered by the therapist-researcher in the original study were integrated into therapy as usual, in order to clarify client experiences/processes pertinent to the individual's therapy. It was considered that the data-set taken from 'treatment as usual' CBT, reflected relatively ecologically valid client and therapist interactions, including discussion of real life clinical material and varying degrees of client collaboration. The therapy undertaken in obtaining the original data-set avoided a number of ecological and ethical barriers to collecting data under experimental control (e.g. significant treatment delays to establish a control baseline and rigid adherence to a prescribed treatment protocol). In contrast the only obvious research driven agenda identified in the data was the purposeful delivery of ABC formulations, which it was considered were typical of formulations used in CBT and had been readily integrated into the therapeutic discourse.

Table 10.

Overview of framework analysis stages as applied to the study data set, informed by Ritchie and Spencer (1994)[26]

Stage Name	Description	Application
Familiarisation	It is important to become highly acquainted with the data, becoming 'immersed in the data'.	• Immersion in the data was facilitated through the rating of alliance, requiring hours of listening to formulations and client responses to these. • Supervision sessions facilitated familiarity through discussion regarding the data set contents.
Identifying a framework	Constructive and meaningful organisation of the data informed by a priori considerations driving deductive analysis of categories, and secondary inductive analysis to identify alternative or additional categories and sub-categories.	• Guided by research question two, determining whether the verbal data demonstrated reliably identifiable forms of engagement and disengagement. • *Engage* and *disengage* categories initially validated via deductive analysis. • *Neutral* responses identified as a third category from emergent data.
Indexing	The systematic application of the established frameworks.	• Refining and defining the scope of overarching categories identified (*engage*, *disengage* and *neutral*) across the data set, establishing a number of different instantiations/examples of each category as identified within the data. • Agreement reached with research team regarding use of overarching categories (Dr Mark Gresswell, Dr David Dawson and Dr Nima Moghaddam). Inter-rater reliability checks undertaken demonstrating strong reliability properties of the verbal response categories *identified of engage, disengage and neutral.*
Charting	Organising the data into a suitable format for further analysis.	• Categories of response were established and charted. • Numerical quantification of immediate post-formulation responses including frequencies of each category of response (*engage, neutral and disengage*)
Mapping	Understanding the data as a whole, and sub-types within it, understanding patterns within the data guided by research questions.	• Within and between-data comparison undertaken, facilitated by charting stage above to answer research questions three and four, considering case level post-formulation engagement and between case level comparisons of formulation responsivity alongside wider outcome measures (outlined in table 14).

Data Analysis

In answering question one *(Is there a temporal association between the presentation of ABC, CBT formulations upon observational, proximal within-session measures of therapeutic working alliance, post-ABC formulation delivery?*) the S-WAI-O was used to measure working alliance in the five minutes leading up to each formulation (the pre-condition) and in the five minutes following each formulation (the post-condition) providing a pair of pre and post measures for each formulation identified. Analysis of the S-WAI-O data pairs was conducted in two parts. Firstly, for each case/individual data set, visual analysis was used to compare all pairs of pre and post-formulation working alliance ratings. This was done to observe whether there was an observable trend within each case that would indicate an association between formulation delivery and working alliance. Hypothetically speaking such a trend would be identifiable in graph form (see figures two to four below for an example of the format) by a majority of improved pre to post pair measures or a majority of deteriorated pre to post measures. It was considered prior to analysis that small trends (i.e. a small majority of improvement or deterioration across pairs) might be ambiguous and thus hard to detect visually. Numerical quantification is sometimes used to complement visual analysis and is helpful for between participant comparisons. It was therefore decided to calculate the proportion of post conditions that represented a pre to post improvement as compared to those that represented a pre to post deterioration. As outlined above, within the SCD literature, this approach is referred to as NAP analysis (Parker & Vannest, 2009). The term ‘non-overlap’ refers to data points in an intervention phase that do not overlap with data points in the pre-intervention phase, thus indicating a change in the trajectory of the data influenced by an independent variable.

When applied to the study data set NAP (see figure five) represents the percentage of events where scores improve from pre- to post-formulation. It is scaled so that 50% represents chance level (and thus no identifiable effect of formulation). As such values >50% indicate the possible presence of positive effects and values <50% indicate the possible presence of negative effects.

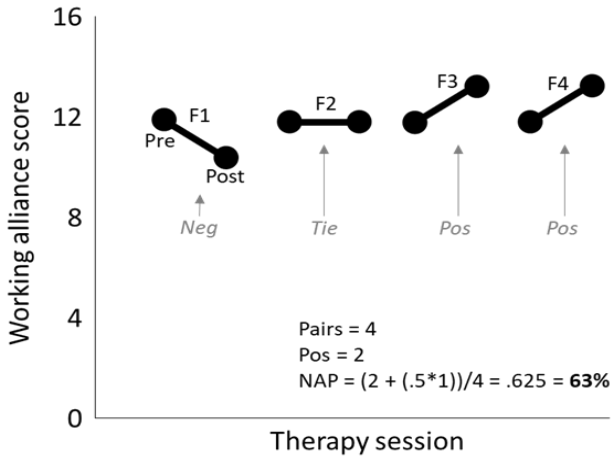

Figure 5. *Illustration of NAP method applied to study data for pairs of pre and post formulation conditions. Neg = negative (e.g. deterioration), Pos = Positive = improvement and Tie = tied result (e.g. no change).*

The steps to calculating NAP for the study data set (as illustrated in figure two) were as follows.

1) The total number of paired comparisons (pairs) is calculated. Each paired comparison is considered equivalent to a therapist formulation event, consisting of one pre-formulation score and one post-formulation score.
2) The total number of paired comparisons that demonstrate 'overlap' are calculated. Overlap occurs when a post-formulation score is either equal to the pre-formulation score (Tie) or when there is a decline from the pre-formulation score (Neg).
3) These (Negs and Ties) are subtracted from the overall number of paired comparisons to get the number of Pos (instances where a post-formulation score improves over the pre-formulation score).

NAP is then calculated using the following formula:

$$NAP = \frac{Pos + (.5\ x\ no.of\ Ties)}{No.of\ Pairs}$$

The overall percentage of Non-Overlapping Pairs (pairs in which the post condition demonstrates improvement) was interpreted in relation to pre-established thresholds outlined by Scruggs and Mastropieri (1998). 51–70% was considered 'questionably effective', 71–90% 'moderately effective' and 90% 'highly effective'. As this research was analysing both potential trends of deterioration and improvement (to avoid a one-tailed assumption of effectiveness) values below chance level of 49% to 30% were interpreted as 'questionable negative effectiveness' (or deterioration). Values of 29% to 10% were interpreted as 'moderate negative effectiveness' and those below 10% as 'highly negative effectiveness'.

Framework Analysis[27]

As outlined above, framework analysis was chosen to address a priori considerations outlined in research question two regarding reliable identification of post formulation engagement and disengagement verbal responses. In addition it was used to inductively identify sub-categories and any novel/alternative categories, with the possibility that these could nullify the a priori assumption that there would be workable categories of engagement and disengagement within the data-set. Additionally, the *charting* stage facilitated between case analysis of post formulation verbal engagement. This addressed research questions three and four regarding post-formulation engagement/responsivity across the data-set and whether differences in responsivity to formulation were associated with wider therapy outcomes such as symptomology measures. The process of framework analysis as applied to this data is outlined below (for a briefer overview please see table ten). It should be noted that whilst the stages outlined broadly reflect a linear progress, stages do naturally overlap (for instance stages following the stage of *immersion* facilitate further immersion with the data). Additionally, as outlined below there were a number of iterations of verbal response categories, including sub-categories that were later revised, with earlier stages being revisited.

[27] See Extended Paper. Section 7.2 Framework Analysis.

Immersion. Immersion with the data set was supported when rating pre and post-formulation segments, which required listening to the lead up to the ABC formulation, the formulation delivery, the client's immediate response and the post-formulation condition.

This involved many hours of listening repeatedly to the ABC formulations and client responses, facilitating a strong working knowledge of the data. This process was strengthened by discussing the data-set in supervision with Dr Mark Gresswell, one of the research supervisors for this project who was already familiar with the data set due to involvement in a previous study.

Identifying a framework. This stage was guided by research questions two and three regarding the hypothesis that engagement and disengagement post-formulation responses would be identifiable in the data. Clear instantiations (see table nine, results section) of engagement and disengagement (labelled *engage* and *disengage)* responses were highly identifiable within each of the participant's data. Field note transcriptions were taken to supervision with Dr Nima Moghaddam, with examples identified by the researcher of *engage* and *disengage* which were readily agreed upon. However, a third category was identified and agreed at this stage, that of *neutral* engagement (see table nine, results section). There was some disagreement addressed in supervisions with the supervisory team (Dr Nima Moghaddam, Dr David Dawson and Dr Mark Gresswell) about whether sub-categories of *engage and disengage (see appendix M)* were equal, or whether they occurred across a spectrum e.g. from most engaged to most disengaged. Agreement regarding the order of such a system could not be reached at this stage.

It was agreed that the category *engage* occurred whenever participant's responses indicated that they were occupied or involved in discourse, immediately following the formulation, pertaining to the formulation e.g. elaborating upon or speaking in relation to the formulation regardless of whether they voiced agreement or disagreement. *Disengage* was agreed to occur when client's verbal behaviour indicated clients were not occupied or involved in discourse pertaining to the ABC formulation. In addition, to apply this category it was also required that their verbal behaviours functioned to be in opposition to occupation or involvement, for instance if they changed topic or avoided the formulation e.g. through silence. Finally neutral responses occurred when verbal responses neither indicated

occupation or resistance to the formulation, e.g., when responses did not provide evidence for engagement or disengagement e.g., “yeah, yeah”.[28]

Indexing and reliability checks. At this stage the author applied and refined the categories established in the previous stage (*engage, neutral and disengage*). Following an initial run-through of the stages (including *charting* and *mapping* stages) it was agreed by the researcher and the research team that an ordinal framework of sub-categories (Appendix N) was not workable due to (1) lack of agreement on the order of this system between the researcher and the supervisory team (and between the supervisors themselves); (2) heterogeneity identified in differential exhibitions of sub-categories (sub-categories to primary categories of *engage, neutral and disengage*) between clients, for instance three clients use of a previous (since nullified) sub-category of “verbal agreement only” in some cases was considered to demonstrate strong engagement and in other cases passive responses.

Agreement was negotiated across all supervisors and the researcher when the ordinal sub-categorisation system (see appendix N) was dropped and sub-categories/instantiations of each category (of engage, neutral and disengage) were noted to demonstrate the variety of ways *engage, neutral* and *disengage* were manifested in the data set (see table 12 for examples). As outlined, this was not a linear process and the final decision to drop these ordinal sub-categories was not agreed upon until later in the process.

As a further quality check, in addition to research team consensus and later in the process following an initial run through of the framework analysis stages, inter-rater reliability checks were undertaken with the author’s research supervisors (three independent judges: Dr Nima Moghaddam, Dr Mark Gresswell and Dr David Dawson) who were blinded to the author’s ratings. The judges were provided with the three identified categories of *engage, disengage* and *neutral,* outlined in table nine. They were then asked to assign these three categories to a random sample of 10% of the overall data-set, but were not asked to provide any further details (i.e. subtypes/examples of the categories as outlined in table nine), as it was considered that the central issue was whether the categories themselves could be reliably applied, in line with the central research questions regarding engagement versus disengagement. It was also considered (upon giving up the

[28] See Extended Paper Section 7.2 Framework Analysis.

ordinal sub-categories outlined) that having to agree on further sub-categories of *engage, disengage and neutral,* would unnecessarily reduce reliability and introduce superfluous detail that did not apply to all of the clients or address the primary research questions.

For agreement to be reached it was pre-determined that two out of the three judges had to agree with the authors ratings (which they were blinded to). Agreement was reached for 13 out of 15 allocations (a sample of 10% percent of the overall data). Intraclass Correlation Coefficient (ICC) estimates, set to a 95% confidence interval were calculated using SPSS statistical package version 25 (a well-established software package), based on absolute-agreement, two-way random-effects model. ICC was estimated to be 0.93 indicating excellent inter-rater reliability properties of the identified categories of *engage, neutral and disengage.*

Charting. As outlined, prior to the above checks, at the initial charting stage an ordinal measure was developed and charted (See appendix N) from most engaged to least engaged. It was agreed that it was not possible to develop an ordinal measure of sub-types of engagement that would work for all participants. As outlined, it was discussed later in the process that although the topographical features of the sub-types of engagement (outlined in appendix N) were applicable to the participants in the sample, the function of these behaviours was likely to be quite different across participants. For instance, one individual's use of silence might be very different to another's, as shaped by their learning history and experiences. It was agreed following the inter-rater reliability checks outlined above that the primary categories of *engage disengage* and *neutral* had been successfully indexed and were workable. The charting process is illustrated in tables five and six, including tables/charts of the final categories, with examples and frequencies of response category for each client.

Mapping. The framework analysis data was then considered as a whole, using a mixed methods approach, quantifying engagement versus disengagement and making wider interpretations regarding these findings.[29] In answering exploratory research question four (*Across cases, is greater positive responsivity to formulations [as determined by higher working alliance scores and engagement versus disengagement] broadly associated with greater improvement in wider-therapy outcomes?)* outcomes of therapy were scrutinised in

[29] As outlined in Results and Discussion sections.

relation to responsivity to formulation, in terms of post-formulation trends of working alliance and verbal engagement. Between case comparisons were undertaken to determine if there was a broad association between therapy outcomes (e.g. improvement in functioning and reduction in symptomology etc.) and formulation responsivity.

Results[30]

Formulations Analysed

There was a total of 76 formulations identified as part of checks conducted with the therapist researcher, that were obtained for this research, 20 formulations for participant one and two and 36 for participant three.

To ensure suitability for this project, quality checks were undertaken as part of analysis to ensure that formulations used conformed to the description of the ABC operationalised above. As outlined, the S-WAI-O rates working alliance in five minute segments. Giving consideration to this, it was identified that in some instances, formulations were delivered more than once within a five minute segment. When this occurred, the pre-measure was obtained from audible data contained in the five minute segment leading up to the start point of the first formulation in the series (of formulations in close proximity to one another). The post-measure was obtained from audible data within the five minute segment immediately following the end of the final formulation in the series. Thus, the ratings sometimes treated combined instances of formulation as singular formulation events. Following quality checks and overlap of data points, a total of 50 pre and post pairs remained. There were eight CBT sessions for participants two and three, and nine for participant one. There were 25 sessions across all participants, with a mean average of one pair of pre and post-formulation conditions per session (range of 0-4).

[30] See Extended Paper Section 8: Extended Results.

Pre and Post Formulation Pairs

Pairs of pre and post-S-WAI-O segment rating measures were obtained for all three participants for each ABC formulation as rated by the primary researcher and author of this thesis. There were 17 pre and post-scores obtained for participant one, 14 for participant two and 19 for participant three. A judge was appointed from the research supervisory team (Dr Mark Gresswell) who independently rated a sample of 10% of the pairs. Intraclass Correlation Coefficient (ICC) estimates, set to a 95% confidence interval were calculated using SPSS statistical package version 25 (a well-established software package), based on an absolute-agreement, two-way mixed-effects model. This was considered the best analysis for obtaining an ICC rating to compare with the standard outlined by the authors of the S-WAI-O tool. ICC was estimated to be 0.88, indicating good reliability. The authors of the S-WAI-O achieved 0.86 (Berk et al., 2010) as outlined in their manual.

Sigma boundaries were set to two (two standard deviations from the mean; see figures one to three). It is recommended that these are calculated for the purpose of assessing whether substantial differences in therapeutic alliance had occurred in relation to the formulation content. The majority of pre and post-formulation activity remained within the sigma boundaries (of two standard deviations from the mean score), with no obvious ruptures indicated. When considering pre to post-formulation alliance using visual analysis, the data illustrated (figures six to eight) did not appear to demonstrate any obvious trends between therapist formulation delivery and working alliance, with approximately the same number of improvements as deteriorations.

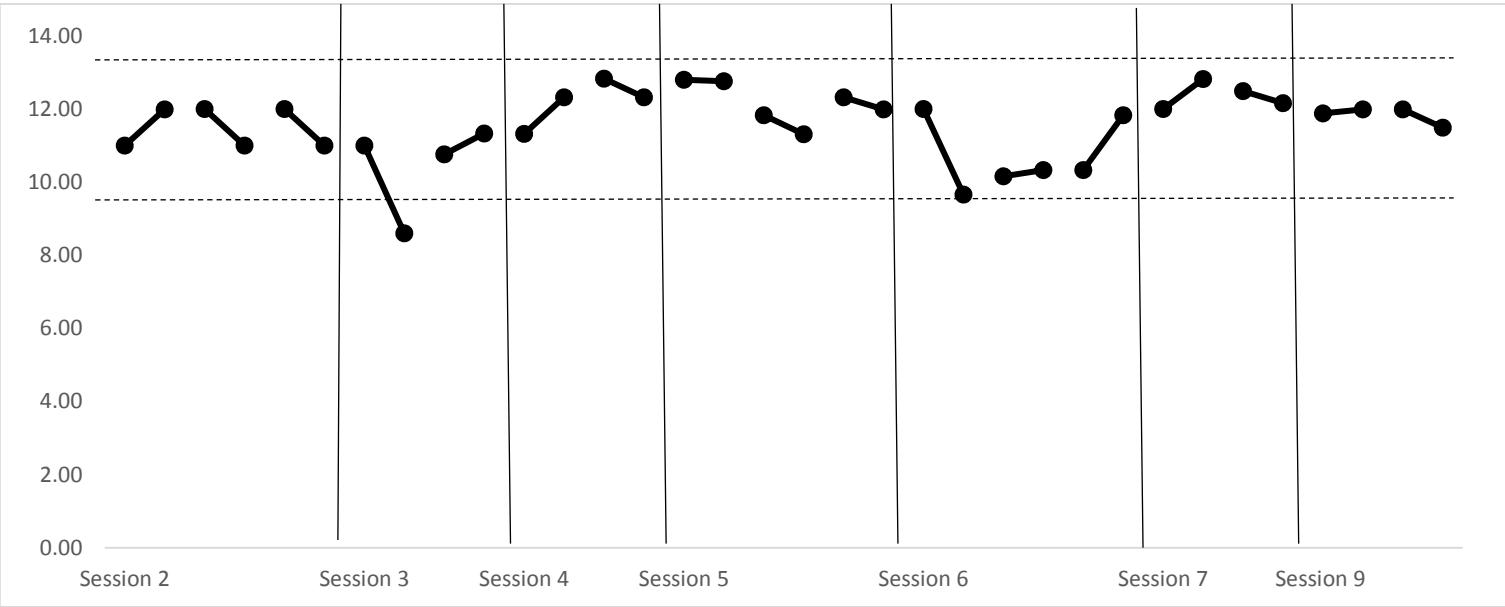

Figure *6.* Participant One. S-WAI-O Scores. Working Alliance Inventory Observation (Segmented Version) Scores Pre and Post formulation. 34 pre and post data points. Mean score 11.58. Dotted lines represent a sigma level boundary of 2 (2 standard deviations from the mean) Upper sigma boundary 13.46, Lower Sigma boundary 9.47. Variance 0.89. Range 8.60 to 12.83. Each bold line represents a pre and post measure contrast. Lower to higher (from left to right represent an increase) in alliance; and higher to lower (from left to right) represents a decrease. Based on a Likert Scale of 1 – 7 across a total of 12 items with an average of 2 domains (Bond and Task 6 items per scale) added together. (Minimum score 7; Max Score 42). Higher values indicates increased alliance. Note that there were no formulation in session eight for this client due to the focus of this session being on a safeguarding matter. There were also no formulations in session one.

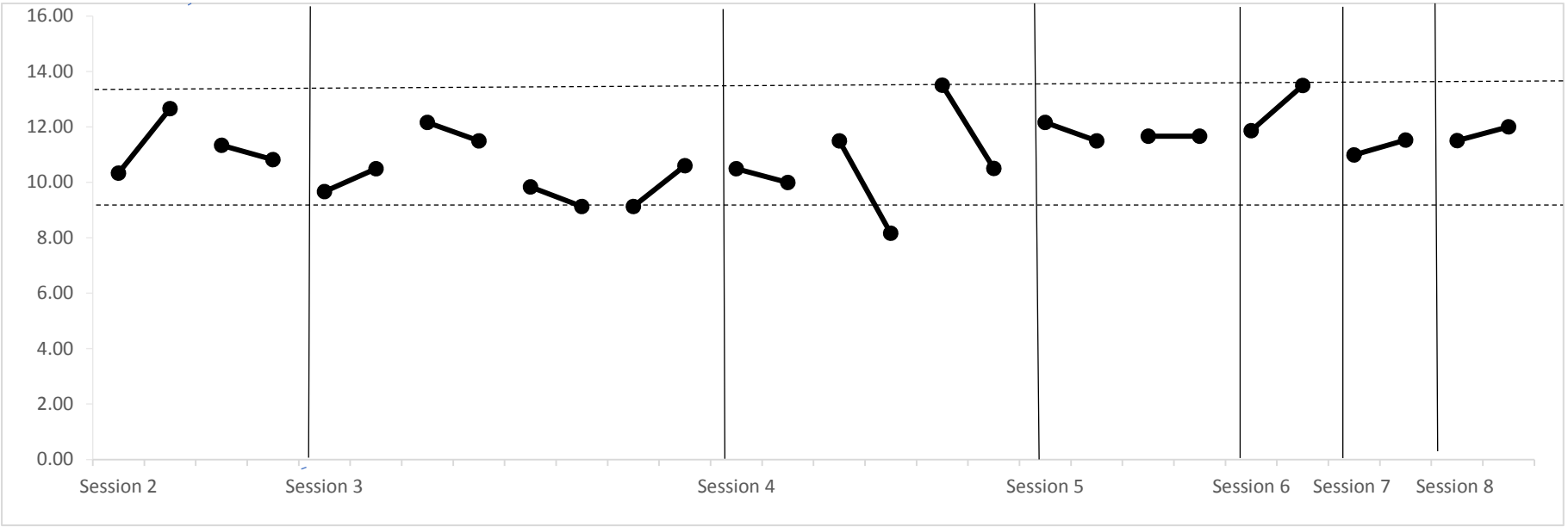

Figure 7. Participant Two S-WAI-O Scores Pre and Post formulation. 28 pre and post data points. Mean score 11.27. Dotted lines represent a sigma level boundary of 2 (2 standard deviations from the mean 2.44) Upper sigma boundary 13.46, Lower Sigma boundary 9.47. Variance 1.67. Range 9.13 to 13.50. Each bold line represents a pre and post measure contrast. Lower to higher (from left to right represent an increase) in alliance; and higher to lower (from left to right) represents a decrease. Based on a Likert Scale of 1 – 7 across a total of 12 items with an average of 2 domains (Bond and Task 6 items per scale) added together. (Minimum score 7; Max Score 42). Higher values indicates increased alliance. There were no formulations in session one for this client.

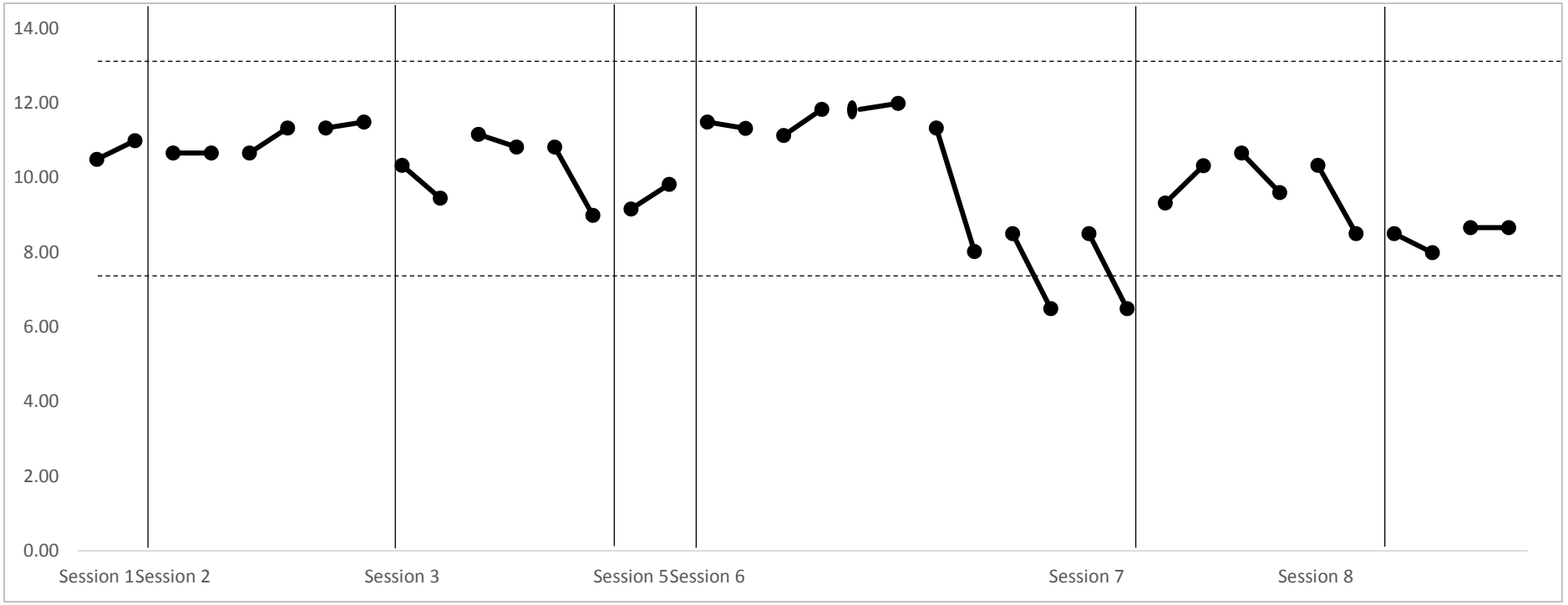

Figure *8.* Participant three. Working Alliance Inventory Observation (Segmented Version) Scores Pre and Post formulation. 38 pre and post data points. Mean score 10.37. Dotted lines represent sigma level boundary of 2 (2 standard deviations from the mean = 2.60) Upper sigma 12.97, Lower Sigma 7.77. Variance 0.89. Range 6.49 to 11.99. Each bold line represents a pre and post measure contrast. Lower to higher (from left to right represent an increase) in alliance and higher to lower (from left to right) represents a decrease. Based on a Likert Scale of 1 – 7 across a total of 12 items with the average of 2 domains (Bond and Task 6 items per scale) added together. (Minimum score 7; Max Score 42). Higher values indicates increased alliance

Is There a Temporal Association between the Presentation of ABC, CBT Formulations upon Observational, Proximal Within-Session Measures of Therapeutic Working Alliance, following Formulation Delivery?

Following the visual analysis of pre and post pairs outlined above. Non-Overlapping S-WAI-O pairs were calculated (table eleven). Overall, the NAP analysis demonstrated a negative 'questionable effect' (mean NAP = 41.73, range of 39.29 to 44.73) of formulations. This finding indicates a small negative (proximal) association between formulation and working alliance. However, the questionable status of this indicates that findings should be treated with uncertainty.

Can Client's Immediate Verbal Responses to Within-Session Therapist Delivered Formulations be Reliably Coded in Terms of Engagement and Disengagement?

As outlined above in relation to framework analysis, systematic application of framework analysis and additional inter-rater reliability checks indicated that engagement and disengagement (labelled *engage* and *disengage)* behaviours, in addition to a third category of *neutral* verbal behaviours, were reliably identifiable with excellent inter-rater reliability properties.

Is there an Observable Association between the Delivery of Formulations and Verbal Engagement (or Disengagement)?

Table 13 outlines the frequency and percentages of engagement, disengagement and neutral verbal responses. Engagement responses occurred approximately 76% of the time across participants (mean of 78.74, range of 71.42 to 92.59), suggesting that in the majority of instances formulation delivery elicited verbal engagement, but with a clear margin of exceptions to this across participants.

Table 11.

Percentages of non-overlapping pairs of S-WAI-O ratings.

Participant	Formulations (N =)	Percentage of Non- Overlapping Pairs	Qualitative Description
Participant One	**17**	41.17	Questionable effect (negative)
Participant Two	**14**	39.29	Questionable effect (negative)
Participant Three	**19**	44.73	Questionable effect (negative)

Table 12.

Framework analysis categories with examples.

Engage	Neutral	Disengage
Verbal agreement followed by an elaboration congruent with the formulation. **Therapist:** A: "Sat there, your thoughts are going round and round your head". C: "Feeling silly". B: "No one else thinks what I (referring to the client's perspective) think, Why I am like this?" Participant: "I know….I see people who are ordinary ..... how do you know they are ordinary, they could be going home and getting beaten up their husbands". *Verbal agreement followed by elaboration incongruent with the formulation (This often serves to clarify the contents of the formulation whilst maintaining a stance of agreement.)* **Therapist:** A: Your feeling the adrenaline B: My body is going into some kind of fight or flight response (Referring to patients perspective/thoughts). C: Anxiety/unsettled. Participant: Yeah. You can control your thoughts to a degree, but it will just be there for no reason. *No agreement/ neutral response followed by an elaboration congruent with the formulation.* **Therapist:** A: Alternative would have been: you've not done these things C: Left you feeling down and a bit like a failure wouldn't it? Would have made you depressed. B:(Therapist referring to client's thoughts), it would have fed into that 'I'm no good at anything and it's a waste of time' **Participant**: "I feel like I've succeeded in something".	*Neutral response only*. **Therapist**: A: Sexually active from young age B: If he has sex with me, he must want me. C: Feel shit after. "Yeah – yeah". **Example 2.** Participant: hmmm	*No response*. **Therapist:** A: Your core beliefs have been triggered (referring to client specific situation) B: Triggered those beliefs that people can't be trusted C: so that actually then underneath that is the sadness, but we see the layer of anger first yeah? That's what we need to be working with, that's most important, that's what it has left you with? Yeah? **Participant**: No response /silence. *Verbal agreement followed by elaboration unrelated to the formulation. (This was hypothesised to serve to change topic entirely).* **Therapist:** A: Outlines participant's reliance on painkillers to complete tasks/function effectively. C: "Deep down that makes you feel really quite sad, you feel weak" B: (Referring to the client's perspective) "I can't even support my daughter without having to take all this medication. The future looks completely hopeless if this is what it is going to be like". **Participant:** "Yeah…it's like I was hoping they would sort out the voices in my head when I get stressed out (referring to recent appointment with psychiatrist re-voice hearing)".

This table includes key examples of the categories identified in framework analysis: *engage, disengage and neutral*, but is not intended to be exhaustive. Please note that the examples are not categories in themselves, but rather instantiations of *engage, neutral and disengage* which were the categories identified across all participants. Some of these examples of these categories apply to all clients, whereas others are client specific e.g. 'no response' is specific to participant three.

Table 13.

Post formulation verbal engagement frequencies and percentages. With ratios of engage to disengage.

	Total Formulations	Response	Frequency	Percentage	Ratio
Participant One	27	Engage	25	92.59	
		Neutral	2	7.41	
		Disengage	0	0	N/A
Participant Two	18	Engage	13	72.22	
		Neutral	4	22.22	
		Disengage	1	5.56	13:1
Participant Three	21	Engage	18	71.42	
		Neutral	1	4.76	
		Disengage	6	23.81	3:1

This table outlines the frequencies and percentages of the categories identified within the framework analysis across the whole data set for each participant. The Ratio column represents the ratio of *engage* to *disengage* (e.g. *engage* versus *disengage*) reduced to the lowest common denominator.

Across cases, is greater positive responsivity to formulations (as determined by higher working alliance scores and engagement versus disengagement) broadly associated with greater improvement in wider-therapy outcomes?

Positive responsivity to formulations was defined as increases in alliance and engagement post-formulation. In order to consider improvement in therapy outcomes, data obtained from outcome measures in the original data set (see table nine for measures list), were scrutinised and scoring was placed into rank order, for each participant, for each measure and across all measures (see table 14).

It was considered unhelpful to contrast rank order of participants in relation working alliance ratings due to the similarities in scoring outlined (range of 39.29 to 44.73).

Overall post-formulation engagement was found to be broadly associated with differences in outcome (see table 14). Participant one with the highest level of observed post-formulation engagement versus disengagement demonstrated the most improvement and participant three with the highest level of disengagement demonstrated the least improvement.

Table 14.

Participant rankings across all outcome scores used in original analysis with overall rank across all measures.

Participant	Promis Scores (Differences pre – post therapy)		MHC –(Differences Pre and Post therapy)		CORE (Differences Pre and Post Therapy)		Alliance (Mean Average of the Client and Therapist Scores).		Overall Rank	Engagement Disengagement(Ratio)
	Score	Rank	Score	Rank	Score	Rank	Score	Rank		
PT One	9.64	1	+66.4	1	-23	1	59.83	3	1	N/A[31]
PT Two	0	3	+.15*	2	- 18	2	67.92	1	2	13:1
PT Three	-6.3	2	-0.36	3	-5 R	3	66.12	2	3	3:1

Table 7 outlines participant's pre and post-therapy score differences across each outcome measure used in the original study as well as their post-formulation engagement ratio (first outlined in table 6) to facilitate consideration of formulation engagement and wider outcomes. Please note that with the exception of the CORE measure, positive increases in scores indicate improvement and reductions indicate deterioration. Each client's pre to post therapy score differences are outlined as are between participant rankings for each measure. The Overall Rank column is calculated based on the total rank across all measures compared to other participants.

[31] No disengagement.

Discussion[32]

To the author's knowledge, this is the first study to examine in-session therapist formulations, in terms of immediate client responses to these formulations and whether there are observable formulation-contingent changes in therapist-client alliance

Alliance

When analysing pre and post-formulation, within-session ratings of working alliance, formulation was found to have a small, negative effect across all participants, which fell within the 'questionable range' and should therefore be treated with caution, with scoring outcomes being very similar (around 60% of formulations being associated with a small deterioration in working alliance), which was observed separately for each participant. In contrast, there was no positive association of formulation detected upon the trajectory of working alliance, which was in opposition to the author's hypothesis that formulation would be associated with an upward trend in working alliance.

Across the quantitative literature there is not a consistent finding that formulation impacts on measures of working alliance, with mixed findings. However, there is a dearth of literature in this area with studies being characterised by small sample sizes, lack of controls and methodological issues. As outlined above, difficulties include: (1) the different approaches and unsuitability of the methods used in the literature to capture the impact of formulation upon dependent variables (e.g. lack of controls or power leading to equivocal or spurious findings); (2) inappropriate proximity of the measures used following formulation activity, e.g. immediacy/temporal contiguity of measurement; (3) different operationalisations of formulation, and (4) unhelpful conceptualisations of the beneficial function(s) of formulation. .

A strength of this study was its temporal focus, with the non-overlapping pairs methodology suited to evaluating the impact of formulation at a proximal level. In

[32] See Extended Paper Section 9: Extended Discussion.

contrast to studies that used between session measures of working alliance, the non-overlapping pairs method employed in this study appeared to detect some formulation activity (with replicated findings across clients). The effect was small and uncertain and future studies replicating this design should verify whether the phenomena measured was formulation activity, by using additional controls.

Additionally, it is also possible that some formulations have a latent or cumulative impact upon working alliance and more studies should employ suitable methodologies that can address this. For instance Daniels et al. (2018) employed a time series analysis to detect latency between formulation delivery and potential impact upon working alliance, with some small non-significant findings. Isolating initial responsivity to formulation at a within session level, could be combined with between session measurement. This could then be used to test various hypotheses e.g. do formulations that result in initial decreases in alliance, later result in enhancement of the alliance?

Engagement

Framework analysis was used to develop an overall understanding of engagement and disengagement verbal responses. Overall, responses were characterised by engagement. There were substantial relative differences identified between participants, with a broad positive association identified between therapy outcomes across measures of mood, distress, functioning and wellbeing. As well as different levels of post-formulation engagement versus disengagement. This lends some evidence to claims made by Kuyken, Padesky and Dudley (2008) who outlined the importance of collaborative engagement with formulations in order for formulations to be effective. However, this finding should be treated with caution due to the lack of controls within this study to manage confounding factors. For instance, individual client differences in agreeableness that may have affected outcomes between participants, irrespective of formulation content.

Wider Literature

Findings in this study are in contrast to other CBT based single case design studies such as Shine and Westacott (2010), Evans and Parry (1997)[34] and Daniels et al. (2018) wherein no overall impact of formulation activity was detected (at the between formulation level) with equivocal findings. These studies used the client as a control, using replicability criterion to test the effects of the formulation phase. However, given the small, proximal and uncertain nature of the current findings (at the within session level) it is possible that failure to find an effect in other studies is due to formulation only having a transient effect that: (1) dissipates shortly after formulation and therefore cannot be identified between sessions; (2) would only be identifiable if the parameters of the research could detect an accumulative or incremental effect of formulation; (3) would only be identifiable when considering possible delayed or latent impacts of formulation e.g., a moment of insight for the client between sessions. In relation to the latter point, isolating the impact of formulation across a client's dynamic environments, such as the clinic and home becomes increasingly complex and problematic for research purposes.

It should also be considered that formulations that increase alliance, may not necessarily be useful for alliance in the longer term and conversely, formulations that decrease working alliance temporarily may not have an overall negative therapeutic impact. In fact it is inevitable and according to evidenced psychological principles of avoidance (or conflict to take a psychodynamic approach) that difficult topics will need to be approached in therapy and foreseeable that clients with self-referential biases may exhibit defensive or avoidance strategies that need to be managed. Anecdotally, it was observed within the data set used for this study, that formulation often led to the confrontation of difficult topics and that this facilitated opportunities for discussion regarding these issues.

This relates to another limitation of this study regarding the use of clients with low-mood. It is possible that self-referential biases specific to low mood skewed the results of this study. This should be considered in future study designs, with openness to the possibility clients with different presenting difficulties may respond to formulation differently.

Future Research

It is recommended that for replication of these findings and to explore directionality between variables of interest e.g. engagement responses to formulation and alliance, further research access larger data sets, using different populations a multiple baseline design, SCD methodology with a controlled baseline. Using this methodology, formulation as an intervention phase could be contrasted with a controlled baseline, wherein the individual acts as their own control, contrasting the pre-intervention (A-phase) with the intervention (B-phase) in accordance with replicability standards (e.g. What works Clearing House, 2019). This is in contrast to the current study which is an AB design wherein the formulation is only one component of the B-Phase and cannot be controlled or teased apart from other confounding factors. Whilst the current study design facilitated exploration of relationships of interest between formulation and alliance/engagement, it precludes examination regarding directionality of effects.

Further research should be conducted to consider other aspects of therapy that formulation foreseeably facilitates e.g. discussion about difficult topic areas and engagement in tasks (e.g. CBT homework) as it is hypothesised that a clear narrative and cogent rationale offered in a coherent formulation would reinforce instances of these, with formulation therefore being an indirect factor, interacting with other factors to improve overall outcomes.

Another potential area for future study is to consider the effect of formulations that invite further enquiry and that are open and revisable in nature (e.g. “I’m wondering if when X occurs this leads you to experience Z”) versus those that are closed and not revisable (e.g. X always leads you to experience Z). An arguable limitation of the current study is that a large number of the formulations delivered by the therapist-researcher did not clearly require collaboration from the client in therapy (See appendix B).

For participant one, formulations were identified to be associated with the highest levels of engagement. Whilst this may have related to individual differences, it is hypothesised that formulations that are characterised by inquiry and invitation to collaborate would facilitate greater alliance (e.g. engagement in task) than their

closed, non-invitational counterparts. The single case design outlined in this study could be used to investigate factors such as this in future formulation research.

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Extended Paper

1. Extended Background: Introduction

As discussed in the journal paper, the British Psychological Society (BPS, 2011) and other authors (e.g. Ryle & Kerr, 2002) outline a number of clinical and therapeutic benefits of formulation. However, one difficulty within the literature is in operationalising what exactly constitutes a formulation, with no universally agreed definition available. Whilst the journal paper contained in this thesis is underpinned exclusively by cognitive behavioural therapy (CBT) definitions, this section of the extended paper outlines definitions of formulation associated with a range of models.

Additionally, in order to illustrate the importance of formulation and its central place within the profession of psychology, a concise overview of the origins of formulation is provided.

Finally, this introduction considers some of the claimed benefits and utilities of formulation, elaborating on those briefly covered in the journal paper.

1.1. Definitions

Clinical formulation, used interchangeably in psychotherapy literature with the term 'case conceptualisation' is a multifaceted construct, with various functions pertaining to different usages outlined across the literature, including formulation as a: conceptual framework, therapeutic tool, account, and process (Lane & Corrie, 2007). Whilst it could be argued that these aspects of formulation are not mutually exclusive, for instance an 'account' could be underpinned by a specific 'conceptual framework', the primary purpose of a formulation and therefore its format, style and the audience it is intended for may be distinct. For instance, depending on whether a formulation is being used in psychotherapy to validate a client's experience, or a team consultation to reflect on interpersonal dynamics etc. Ingram (2011) states that formulations serve as an explanation and can be used to elicit a response. Psychotherapy literature refers to 'process' and 'product' formulations to distinguish between the depth and breadth of a formulation (Ingram, 2011). Comprehensive formulations such as a longitudinal developmental formulation (Beck & Beck, 1995) belong to the category of product formulation and formulations characterised

by brevity e.g. an Antecedent, Behaviour, Consequence (ABC; Ellis, 1977) formulation belong to the process formulation category, Ingram (2011). Given the diversity outlined, it is therefore difficult to operationalise what a formulation is for the purposes of shared understanding and research development.

Lane and Corrie (2007) outline that the primary use of process or product formulation is contingent upon the psychological approach being used. For instance, psychodynamic approaches use process formulations frequently in the form of interpretations, identifying trends of conflict throughout a client's life and in their present interactions with the therapist (Schröder, Cooper, Naidoo, Tickle & Rennoldson, 2015); whereas CBT approaches operationalise (and quantify) sub-levels of human behaviour and experience (e.g. physiological components and cognition), with emphasis on the mediating role of cognition (Moghaddam, Dawson & Gresswell, 2015). Approaches underpinned by a social constructionist epistemology (e.g. systemic and phenomenological approaches) emphasise the importance of not forcing a deductive theoretical framework upon a client (Eells, 2011; Lane & Corrie, 2007). Additionally within this approach, the importance of considering historical and sociocultural factors to inform formulation is paramount (Lane and Corrie, 2007).

Dawson and Moghaddam (2015) state that an increasing amount of psychologists (one third) now define themselves as 'integrative'. This situation parallels the increasing integration of psychotherapy approaches. For instance, third wave CBT approaches such as cognitive analytic therapy (CAT; Ryle & Kerr, 2002) and Acceptance and Commitment Therapy (ACT; Hayes, Stosahl & Wilson, 2012).

1.2 History of Clinical Formulation within the Scientist Practitioner Framework

Clinical formulation is theoretically congruent with the principles of the Scientific Practitioner model also referred to as the 'Boulder' model. David Shakow an American psychologist devised this model and proposed that it should underpin training curriculums for clinical psychologists. It received accreditation in 1949 by the American Psychological Society (APA) as a model of training (Albee, 2000). It was supported by influential clinicians such as Hans Eysenck and Monte Shapiro as an idiographic alternative to psychiatric diagnosis (Lane & Corrie, 2007). A core tenet of the Scientist Practitioner training model for

clinical psychologists was that it was based on assessment grounded in research (Lane & Corrie, 2007).

The Scientist Practitioner model was accepted by British Psychologists, and the term 'formulation' entered the nomenclature in clinical psychology regulations in 1969 (Crellin, 1998), wherein it was stated that whilst there was no consensus on how formulation should be conducted, but that the role of the psychologist was to deduce and highlight key components of a client's difficulty. The primary remit of clinical psychology at this time was assessment (Crellin, 1998). Formulation and the Scientist Practitioner model was underpinned by the epistemological stance of logical positivism, congruent with Psychology's reputation as an academic subject (Crellin, 1998).

The term scientific-practitioner has since changed in terms of the scope of its application. It was originally referred to in relation to testing and analysis, but now applies to other applications, such as applying concepts in psychotherapy to conceptualise clinical difficulties and using models of offending in forensic settings to assess and manage risk. This has occurred as clinical psychologists have been employed in wider and more diverse settings (Lane and Corrie 2007).

Clinical formulation is now a central professional competency, as outlined by the BPS (BPS, 2011) and Health and Care Professions Council (HCPC, 2009) and is practiced by all of the branches of professional psychology e.g., educational and counselling psychologists, albeit with different emphases (Lane & Corrie, 2007). Within the core competencies outlined by the HCPC, clinical psychologists should use a Scientist Practitioner stance to integrate assessment data and theory when developing formulations (HCPC, 2009). The Scientist Practitioner model itself has developed to integrate processes of assessment and intervention grounded in research; hypothesis testing; MDT working and research (HCPC, 2009; Lane & Corrie, 2007).

It has also been suggested that claims regarding the benefits of formulation and the scientific terminology used to convey these benefits are examples of rhetoric employed by the profession of clinical psychology in order to gain power and status (Lane & Corrie, 2007). However, if (hypothetically speaking) this is the case, it does not mean that psychological formulation does not provide benefits. Additionally, whilst clinical psychologists may emphasise formulation as being central to their role, other professionals including psychotherapists and psychiatrists also use clinical formulation within their roles.

Whilst formulation was initially underpinned by behavioural approaches and then CBT approaches, it has developed to become increasingly integrative, with psychologists using a wider range of models (Crellin, 2008; Moghaddam & Dawson, 2015), that are not congruent with the traditional Scientist Practitioner model. This parallels wider epistemological debates amongst clinical psychologists about the nature of what constitutes 'science' (Crellin, 2008). However, notwithstanding this, the primary model that clinical psychologist trainees are taught to use is CBT (HCPC, 2009). Gilbert (2009) outlined that due to its empirical basis, CBT is congruent with the Scientist Practitioner position that clinical psychologists have broadly assumed. Gilbert (2009) suggests that CBT has been used by clinical psychologists and research psychologists as a conceptual framework to operationalise a range of ideas of psychological interest, including attachment and mindfulness phenomena. Gilbert (2009) suggests that in contrast to the focused Beckian CBT (Beck, Rush, Shaw & Emery, 1979) approach outlined in the journal paper and exemplified within the ABC formulations, that the CBT framework has now become an overarching term for a range of disparate psychological approaches. However, as outlined, CBT can still be conceptualised and used in the traditional Beckian CBT format.

Kennedy and Llewelyn (2001) conducted a Delphi study to elicit opinions from the clinical psychology community, including trainees, trainers and clinicians about the future of clinical psychology in terms of its Scientist Practitioner identity. They concluded that the widely shared favour amongst psychologists in maintaining this identity is representative of a shared ideological stance, as opposed to a dedication to scientific research. This lack of dedication to scientific research is evidenced by a low publication rate amongst clinical psychologists e.g. Brems, Johnson, and Gallucci, (1996). A number of factors may impact upon this lack of scientific contribution including time constraints for psychologists when within a resource deprived public sector, and lack of ongoing affiliation with academic settings post-qualification.

1.3 Claimed Benefits and Utilities of Formulation

A large number of authors including Bieling and Kuyken, (2003); Johnstone and Dallos (2013); the BPS (2011), and Ryle and Kerr (2002) have highlighted a range of benefits for formulation outlined in the following broad categories.

Relational. It has been suggested that sharing a formulation is emotionally containing for client, validating their difficulties, with this facilitating an increase in therapeutic alliance (Ryle & Kerr, 2002).

Conceptual framework. Particularly within the modality of CBT, clinical formulation is used as a conceptually based theoretical framework, wherein hypotheses (or inferences) are made regarding client presenting difficulties. Formulation provides a conceptual basis upon which to test out hypotheses in a systematic way (Johnstone & Dallos, 2013). Cognitive Analytic Therapy (CAT), a 'third wave' CBT approach claims that formulation provides the client with a new way of conceptualising their difficulties (referred to as reformulating), which the authors of CAT claim facilitates the opportunity to revise these (Ryle & Kerr, 2002).

Consultation and treatment planning. Authors have outlined that as psychologists increasingly work in team settings, formulation has been a helpful tool for developing a shared understanding of client's difficulties, which can be helpful for the purposes of consultation, team reflection and treatment planning (BPS, 2007).

Accountability. It been claimed that formulation supports transparency around treatment planning and decisions made concerning client's care, providing a clearly documented rational for this. This becomes increasingly important when idiographic decisions are made that are not in line with clinical guidelines.

Whilst there are many anecdotal claims of the benefits outlined above, there is a dearth of empirical literature evidencing any of these. Systematic reviews have identified that these potential benefits are only explored by a small number of papers using different methodologies, many considered to be poor in methodological rigour (e.g. Aston 2009; Bieling & Kuyken, 2003; Geach, Moghaddam & De Boos, 2018).

2. CBT

The journal paper in this thesis used audio recordings of CBT sessions and CBT specific formulations to facilitate investigation of questions regarding formulation. This section of the extended paper provides contextual information regarding the CBT model, including a brief history of the model with consideration of CBT's conceptual underpinnings.

Additionally, a brief overview of the evidential basis for CBT is outlined, considering its acceptance as the most dominant model within psychotherapy, also addressing critical perspectives.

2.1 Brief History of CBT

The development of the model CBT is primarily attributed to Aaron Beck (Beck, 2005), an American psychiatrist. Beck reports that he was first inspired to develop the model during clinical work with depression. At that time, the psychotherapeutic landscape was characterised primarily by psychoanalytic thinking. Beck considered that psychoanalytic explanations were both limited in their explanatory power for conceptualising depression and unfalsifiable (Beck, 2005; Beck et al., 1979). Based on his own clinical observations and influenced by other cognitive approaches such as Rational Emotive Behaviour Therapy (Ellis, 1977) Beck claimed that clients with depression demonstrated cognitive appraisals of their experiences characterised by negative views regarding: (1) the world, (2) the self and (3) the future (Beck et al., 1979). Beck's initial CBT model of depression was later widened to range of clinical diagnoses, with the CBT model conceptualising that these diagnoses also shared the same underlying mechanism of appraisal mediating the role of experience, with a range of cognitive biases associated with presenting difficulties, e.g. hypervigilance to threat in anxiety (Beck, 2005).

2.2 Evidence Base for CBT

CBT is the most widely researched psychotherapy (Gaudiano, 2008), with thousands of studies consisting of case studies; randomised control trials (RCTs), meta analyses (and even re-analyses of these analyses (e.g. Wampold, Minami, Baskin, & Tierney, 2002).

Meta analyses and literature reviews have found CBT to be effective for a range of disorders, with particular support for common mental health difficulties including depression and anxiety (Beck, 2005). CBT is also the primary therapy supported by National Institute of Clinical Excellence Guidelines (NICE) and other policies and guidelines (Mollon, 2009).

2.21 Component studies. Additionally, there are a range of 'component studies' for CBT, wherein different theoretically based, specific ingredients of therapy such as 'thought challenging', have been compared with mixed results. Some studies have found no differences between these conditions (e.g. Schmidt et al., 2000) whereas others have found statistically significant differences (e.g. Pompoli et al., 2018). Bell, Marcus and Goodlad (2013) concluded that there were no demonstrable effects of any specific ingredient of CBT (when analysing dismantling studies using a meta analytic methodology) across diagnostic groups, but that there was a small effect for additive components: additional specific ingredients added to those used in standard protocols. A difficulty with this body of literature is that it is characterised by a relatively small number of studies and thus underpowered (Cujipers et al., 2014). Additionally, as outlined by Gilbert (2009), CBT is no longer a single treatment approach, but rather a range of approaches including various instantiations of cognitive behavioural and physiological techniques, such as mindfulness and acceptance processes. The functional impact of these could foreseeably have different impacts with different populations, rendering this a complex area of study that requires large volumes of data to facilitate meaningful comparisons.

2.3 Criticism of CBT

Critics of CBT outline that the effectiveness of CBT is confounded by the following. Meta analyses of CBT are the most widely published in the psychotherapy literature and thus capture the impact of CBT, but fail to consider the impact of other treatments for the same difficulties (Gaudiano, 2008). Critics also highlight that meta analytic studies fail to adequately separate bona-fide treatments from other approaches, e.g. CBT versus moral support, rather than CBT versus a bona-fide approach (e.g., psychodynamic therapy) which can serve to misrepresent effect sizes. Finally, another criticism is that that those undertaking research into a particular therapy model may be biased about the superiority of that treatment, referred to as the allegiance effect, which is argued to impede objectivity in research (Parker, Roy & Eyers, 2003).

Additionally it has been argued that meta analyses, which as outlined are often used to assess CBT, fail to consider the impact of individual factors such as the degree of individual client's diagnostic symptoms (e.g., depression scores), categorising research participants

into discreet categories that fail to tease out important individual factors such as readiness to change (Parker, Roy & Eyers, 2003).

In summary, the evidence base for CBT is substantial, with application to a large range of diagnostic categories, more so than other established therapies. CBT is readily congruent with the positivist epistemology and language prevalent in research settings. It is currently unclear whether other therapies used in clinical practice, including third wave approaches, are distinctly different to CBT, due to a conflation of approaches under the overarching label of CBT and lack of clarity as to whether CBT based components have distinct therapeutic impact.

However, notwithstanding these criticisms and despite questions about its unique benefits compared to other therapies, the established evidence base of CBT and its applicability to research render it a useful model for testing hypotheses regarding formulation. Findings identified in the process, as discussed in the extended discussion section below, are not limited to CBT and can be considered as part of wider psychotherapy processes.

3. Common Factors

A significant body of research that arguably gets less attention than the cognitive behavioural therapy literature is referred to as the ‘common factors’ of psychotherapy, those aspects of psychotherapy that are a-theoretical and not wedded to a particular model of psychotherapy. Common factors emphasise the relational aspects of therapy and include: alliance, empathy, expectation and cultural adaptation (Wampold & Imel, 2015). These are in contrast to specific ingredients of therapy such as cognitive and behavioural approaches. The argument used by proponents of common factors are that all structured therapies are roughly equivalent and that it is common factors such as working alliance and expectation that predict outcome, with studies claiming differences in outcome predicted by common factors as being between 40 and 70 percent (Wampold & Imel, 2015). Research in this area through use of meta analytic studies has demonstrated that when comparing CBT to other bona fide treatment conditions, they are roughly equivalent, with no particular therapy demonstrating an advantage (Wampold & Imel, 2015).

In relation to the journal paper and this thesis considering formulation, it is very important to give consideration to this perspective of the evidence base, due to the implications these arguments have upon endorsing specific therapies. It should be considered whether formulation constitutes specific factors or common factors (or a blend of both) and what, if any importance, the common versus specific factors debate, has on the clinical application of formulation. Additionally it is pertinent to consider what this debate might tell us in terms of the importance of a particular model underpinning formulation.

The proliferation of RCT studies for Cognitive Behaviour Therapy starting around the 1960's served to validate the scientific ethos of CBT. It was also in the interests of the Scientific Practitioner stance of psychologists contributing to these RCT publications. The standardised outcome measures used in CBT (such as symptomology measures) were congruent with the biomedical orientated RCT trials and associated publications of the time (Mulder, Murray & Rucklidge, 2017). This has meant that a large bulk of research has been spent investigating the outcomes of specific treatments as opposed to the actual mechanisms that underpin them. Indeed as outlined above, the CBT dismantling studies that do exist are insufficiently powered. Mulder et al. (2017) outline that in the absence of sufficient process research, it is unclear whether CBT specific treatments are different to other therapies. For instance whether conceptualising thoughts as 'hypotheses to be tested' in CBT (Beck et al., 1979) is functionally or phenomenologically different to 'diffusion' from thoughts, as outlined in ACT (Arch & Craske, 2008). This argument can be taken further and applied to treatments such as psychodynamic approaches, which it has been demonstrated can be operationalised using behavioural conceptual frameworks, e.g. functional analytic psychotherapy (FAP; Kohlenberg & Tsai, 2012) and cognitive analytic therapy (CAT; Ryle and Kerr, 2002).

3.1 Specific Factors

Mulder et al. (2017) outline that the literature for specific versus common factors is characterised by an interest in relational aspects of therapy versus the non-relational specific factors, which relates to ontological emphasis. However, in itself this separation is a false dichotomy because in real life therapy settings, how can these be separated? For instance, if someone trusts their therapist they would be foreseeably more willing to engage in an exposure task, or be more convinced by the explanations provided by the therapist.

Various proponents of specific factors acknowledge the importance of the working alliance (a common factor). Working alliance is reported to be the most important common factor. Wampold and Imel (2015) provide a theoretical structure to explain that working alliance interacts with other common factors such as 'expectation', to moderate clients' engagement in adaptive behaviours and strategies that work across all therapies.

This separation of common versus specific factors is also limited by what is reported in common RCT outcomes. RCTs are often concerned about specific diagnostic assessment such as depression or anxiety measures, rather than distress of functioning (Mulder et al., 2017), which may limit the studies ability to capture the effects of specific ingredients versus common factors. For instance in ACT therapy, psychological flexibility, rather than symptom reduction emphasised in RCTs is the outcome of importance (Hayes, Strosahl, & Wilson, 2012). Comparing CBT to ACT would be limited if outcomes didn't address what the therapy is targeting, i.e., increased flexibility. Additionally, the applicability of these alternative outcome measures might be more pertinent to some client groups than it is to others (e.g. to people suffering chronic pain using acceptance skills in ACT).

Parker et al. (2003) outline confounds to the paradigm of specific ingredients versus common factors research, including: (1) the variability in how therapies are practiced in RCTs, with allegiance affects rarely reported; (2) unpublished trial data often being overlooked; (3) client and therapist factors being overlooked; (4) level of therapist fidelity often being overlooked; (5) the limitations of self-report measures used in these studies; (6) conflation of effectiveness studies (evaluating therapy in typical clinical practice) versus efficiency studies (wherein therapies are practiced in tightly controlled conditions, with trial therapists using protocol driven approaches).

On balance the dichotomy of specific versus common factors is a simplistic notion that impedes understanding of important processes such as the interaction of working alliance and formulation investigated in the journal paper. Proliferation of therapies using overarching labels such as CBT obstructs a clear understanding of distinct approaches and components. Additionally, limitations of the methods used in psychotherapy research prevents answers to the question of who, at a sub-diagnostic and individual level, is likely to benefit from potentially distinct approaches and specific ingredients/components such as formulation. Further understanding of these factors and a more unified approach, rather than the specific versus common research paradigm outlined, would help to improve

understanding of how factors such as working alliance can be enhanced by specific approaches.

When these ideas are applied to formulation it is likely that formulation in clinical application constitutes an interacting blend of common and specific phenomena. For instance, if the formulation model is outlined coherently by the therapist (specific factor), this might potentiate expectation and alliance (common factors) and visa versa, with these factors being likely to interact. Related to this, therapist and client factors (the unique characteristics of the therapist and client, found to be associated with change in the literature [e.g. Scheel, 2011]) are likely to potentiate the use of formulation, i.e. the understanding of the client and their readiness to engage with formulation.

4. Top Down and Bottom Up Evidence

This section elaborates on a reference made in the journal paper to formulation research being focused upon the content of formulations including inter-rater reliability properties of formulations. This is referred to under the term ‘bottom up’ approaches to research by Beiling and Kuyken (2003), who outline the differences between ‘top down’ and ‘bottom up’ research approaches to formulation. This section refers to their work, defining what these approaches are and providing a concise overview of the bodies of research that pertain to these categorisations.

Bieling and Kuyken (2003) outline the difference between ‘top down’ and ‘bottom up’ approaches to validating theoretical frameworks such as CBT. Top down approaches within formulation refer to theory driven research that deductively tests aspects of a theory. For instance top down research might investigate the existence of dysfunctional assumptions within CBT. In contrast, ‘bottom up’ research in formulation relates to the issues of reliability and validity in regards to what is formulated. They address the following questions associated with the reliability and validity of formulations: (1) can cognitive therapists reliably formulate client difficulties? For instance, as demonstrated via inter-rater reliability; and (2) are formulations meaningfully related to client’s problems. For instance, when an ABC formulation predicts that an activating event is associated with an emotional outcome

(moderated by a particular belief), would repeated testing of this across time confirm its reliability, and thus applicability to the client's difficulties.

4.1 Top Down Research

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4.11 Bieling and Kuyken (2003) have provided a comprehensive overview of a number of areas in which to consider the construct validity of CBT case conceptualisations, considering the specific areas of depression, anxiety and personality disorder diagnoses. For instance, they outline that there is an extensive and established evidence base for cognitive biases within depression and anxiety. They refer to large bodies of research, wherein it has been experimentally demonstrated that persons in a low affect state are more likely to retrieve negatively valenced cognitions and that persons exhibiting higher levels of anxiety will be more likely to attend to and interpret information that is perceived as threatening (Bieling & Kuyken, 2003).

4.2 Bottom up Evidence

4.21 Inter-rater reliability. Flinn, Braham and Das Nair (2015) presented a systematic review of the literature that addressed the inter-rater reliability of clinical formulation using 18 studies. For cognitive formulations reliability was very variable. The authors outlined that the identification and description of client difficulties obtained higher inter-rater reliability scores than inferential components. Similarly, when comparing situational formulations to case studies reliability was much higher. Therefore clinicians in the studies reviewed obtained higher agreement on describing the key components (e.g. key thoughts, behaviours etc.) than they did in agreeing upon the relationships between them. Factors that appeared to moderate agreement were the complexity of the formulation, for instance, a situational formulation with fewer data points occurring in close temporal proximity (as with the ABC formulations in the journal paper) compared to a formulation with distal associations, with many data points and intermediary factors occurring across a long period of time.

Other modalities included a behavioural formulation for which poor inter-rater reliability was demonstrated (percentage agreement 30 to 43%). Both integrative and psychodynamic formulations demonstrated moderate to substantial inter-rater reliability. However, the authors demonstrated that for the psychodynamic studies which obtained substantial agreement, the pooling of percentages used in the study may have inflated the inter-rater reliability results. Across all studies inter-rater reliability was found to be varied (low to substantial). Given the low representation for any single modality any conclusions regarding specific models should be treated with caution. Further studies with higher numbers of studies are warranted. The current study indicates that there are factors including complexity that appear to impact on inter-rater agreement between clinicians.

4.22 Impact of Validity. Mumma and Fluck (2016) outline that the reliability of a formulation can be improved through use of improved scientific methods, wherein associations between variables in a formulation (e.g., X occurs following Y), can be verified through use of statistical analysis and single case experimental design, wherein a client acts as their own control and idiographic assessment of variables, such as number of exposures to a specific event can be analysed in terms of their impact upon dependant variables of interest, e.g mood.

5. Potential Moderators of Formulation.

This section elaborates on therapist factors referred to in the journal that could foreseeably moderate the impact upon formulation. These include the use of cognitive biases by clinicians and clinical expertise, with consideration of how these may impact upon formulation development and related processes.

5.1 Cognitive Biases

Cognitive studies have demonstrated a range of implicit cognitive biases or heuristics that persons will employ when dealing with information (Kahneman, 2011). It has been speculated that the human tendency to exhibit these biases is evolutionary in nature and in a large number of situations confers a quick decision making advantage. For instance, in a survival context a decision based on approximately correct information that prioritises rapidity might be the difference between life and death, wherein a calculated and systematic application of logic would be unhelpful (Gigerenzer, 2008). However, in other contexts such rough and implicit cognitive biases may be less than advantageous, for instance when applied to formulation and clinical psychology. Dumont (1993) used the metaphor of a moving train, explaining that when psychologists/therapists intervene with clients they are stepping on to a train that has already been on a long journey and is still moving. Furthermore he outlines that it is a cognitive bias in itself to believe that conceptualisations developed clinically are anything less than highly fragmentary. When a therapist develops a conceptualisation of a client they are dealing with the information that is presented within the context of the therapy space which is subject to time pressures and a range of influences including cognitive biases. These will be outlined briefly here. It should be noted that cognitive biases/heuristics is a large body of research (Kahneman, 2011).

Framing effect research has demonstrated that people are more likely to take actions based on the avoidance of loss than on the pursuit of gain (Tversky, & Kahneman, 1981). The way the information is 'framed', or presented, in relation to whether a loss or gain is emphasised, has a greater influence on action then the information itself. Thus, even if two equivalent options are presented, the frame emphasising loss will be avoided (e.g. five percent chance of failure versus 95 percent chance of success). This heuristic has significant implications for a formulation informing treatment or risk assessment and could foreseeably lead to risk aversion bias that has detrimental impacts upon client care or positive risk taking.

Recency bias is a cognitive bias wherein people recall the most recent information they have heard. This could have clear impact(s) upon formulation, ignoring information gathered earlier in treatment in light of novel information. Related biases include anchoring

bias wherein information heard at the start of a process is resilient to change and confirmation bias wherein persons seek to confirm a hypothesis that they have made. Given the importance of formulations being open to new information and hypothesis testing, these biases would arguably be disadvantageous in relation to clinical formulation (Dumont, 1993).

The role of emotions such as low mood and anxiety have been researched in relation to cognitive biases (Mineka, & Sutton, 1992). Essentially, research indicates that both state (situational) anxiety, and trait (long term /dispositional) anxiety impact upon cognitive processes including memory, attention and interpretation, with a tendency to emphasise threat (Mathews & MacLeod, 2005). Translating these lab based findings into clinical contexts, wherein the use of formulation is conducted within a collaborative relational context, it is easy to foresee that relational pressures that a therapist may encounter (such as wanting to remain amicable with a client) could impede the therapeutic utility of the formulations they offer.

Additional biases have been identified specifically in clinical contexts, such as clinician's tendency to assume correlations between variables when they are not present and conversely miss them when they are (Dumont, 1993) as well as availability biases, wherein clinicians will employ the most readily available information to a problem, or the format that they are most used to, running the risk of missing important perspectives and factors relating to the client's difficulty.

Overall clinical formulation in practice is open to significant human error and bias. This is an under researched area and has implications for the development of specific remedial strategies focused upon mitigating such biases, including ones already included in clinical infrastructure such as supervision, wherein clinical psychologists are given space to reflect on clinical interactions. Additionally, strategies such as those outlined above by Mumma and Fluck (2016) could be usefully employed to systematically check the reliability of formulations, rather than relying on clinical intuition alone.

5.2 Impact of Expertise on Formulation

Research of expertise on therapy outcomes in psychotherapy has not demonstrated an added benefit of expertise. This has been the case even when novices have been

compared against experienced clinicians with over twenty years of experience (Tracey, Wampold, Lichtenberg, & Goodyear, 2014).

However, critics of expertise research such as Hill, Spiegel, Hoffman, Kivlighan and Gelso, (2017) have criticised this body of literature for equating years of experience with expertise, which assumes a linear relationship of time practising psychotherapy resulting in improved ability/expertise. The authors proposed that in order to be considered an expert, one must have a range of competencies, some of which they outlined are developed by practice, e.g. reflection in supervision and adjustment to purposefully obtained client feedback. It was hypothesised that other expertise would vary by individual differences in therapists interpersonal skills and cognitive abilities, e.g. their ability to deal with complex and ambiguous information (Tracey et al., 2014). Individual therapist factors such as these, have been found to be associated with substantial variance in therapy outcomes (Saxon, Firth & Barkham, 2017).

Relating this to expertise in the use of formulation, Dudley, Ingham, Sowerby, and Freeston (2015) demonstrated a positive correlation between clinical experience and the level of quality and reliability of formulation. They reported that there was a positive correlation between therapist experience, quality and how well the formulation informed the treatment plan. However, the majority of formulations developed by their pool of participant clinicians were considered poor. With only therapists with the highest levels of experience/expertise demonstrating stronger formulating skills. This difficultly may once again be explained by assuming a linear relationship between years of practice and expertise, as oppose to selecting clinicians specifically identified for their clinical formulation expertise.

Further research is required to address the impact of therapist characteristics and expertise upon the reliability of formulation. Other areas for consideration include the impact of expertise and cognitive biases upon the quality and impact of formulation, as well as considering training strategies (as with the related areas of cognitive biases) to facilitate the development of expertise and reduction of cognitive biases in clinical formulation.

6. Outcomes/Impact of Formulation

This section outlines the evidence base for formulation within the contexts of groups and individuals. Whilst this was briefly considered in the journal paper within the context of CBT formulations shared with individuals, this concise overview explores the small body of literature pertaining to formulation sharing across CBT and other models studied, with individuals and groups.

6.1 Group Studies

A review developed by Geach et al. (2018) was conducted to investigate the usage of the term 'team formulation' within the literature and findings regarding its impact/effects. The authors outlined that there were a number of different usages of the term 'team formulation', which overall were characterised by shared understanding; with terms such as "reflective practice" wherein psychologists took on a consultant role, developing understanding, with the associated aims of improving team and service effectiveness.

It was considered that there was no clearly defined usage of the term 'team formulation' or related terms, upon which a clear understanding of effectiveness could be evaluated. Existing research was characterised by self-report responses that were mixed in terms of demonstrating effectiveness or utility of team formulation. Further, more tightly operationalised research with clear and appropriate outcome measures linked to research questions is required to build a clearer understanding of the utility of team formulation and to inform best practice.

6.2 Reviews

A number of reviews of the therapeutic benefits of formulation (across therapeutic modalities), e.g. Aston (2009) and Stewart (2014) have concluded that the number of studies pertaining to formulation is small, the level of quality is varied and that papers are

characterised by small sample sizes. There is currently no clear demonstration of a beneficial impact of formulation upon treatment outcomes or important clinical phenomena such as therapeutic alliance. Given the small number of papers and mixture of quality and findings reported, findings from these studies are briefly reported below for critical consideration.

Crits-Christoph, Barber, and Kurcias (1993) investigated psychodynamic formulation accuracy and the impact of this upon therapeutic alliance. The authors hypothesised that higher accuracy of formulations would be associated with higher therapeutic alliance. This study used N=3 participants and N=25 therapists. Alliance was assessed at the start point and late on across the interventions (intervention mean = 55.5 weeks). Formulations were identified by judges with a .56 agreement rate (Cohens Kappa), Alliances measured later in therapy were found to have a moderate and statistically significant association (r=.52, p = >0.005). To the author's knowledge, this is the only study to have investigated the impact/association of formulation accuracy upon working alliance. The results of this study warrant further investigation via controlled replication.

Piper, Azim, Joyce, & McCallum (1991) investigated the impact of therapist-formulation upon clients' and therapists' ratings of alliance and treatment outcomes. The study recruited N=64 participants and used a control. However, there was no use of blinding/randomisation. The authors identified a negative relationship between the frequency of psychodynamic formulations and alliance and outcome. The strongest findings were found with clients with ratings of poor interpersonal functioning.

Høglend (1993) employed a non-equivalent group design for recruiting N = 43 participants with a diagnosis of Borderline Personality Disorder (BPD). The study investigated the long-term impact of psychodynamic formulations on therapy outcome. The goal of treatment was different in each group, based on a pre-determined suitability criterion for each group condition. The condition for group one was for interpretations to focus on the patient and for group two the goal was to focus on relationships outside of therapy. Whilst there were no significant differences detected between groups, results were found to indicate a negative impact of a high frequency of interpretations. The authors concluded that formulations should be used sparingly.

Hoglend et al. (2008) employed a randomised control design. N= 100 participants were randomly assigned to psychodynamic therapy for either (1) a formulation condition or

(2) a non-formulation-condition. Whilst there was no difference between groups, it was found that participants with difficulties with interpersonal functioning demonstrated greater improvement at follow up (followed until four years post therapy) than those with severe interpersonal functioning in the non-transference formulation group.

Schut et al. (2005) employed a multiple baseline time-series design wherein each participant acts as their own control, with baseline measures of outcomes e.g. level of symptoms and alliance rating established prior to treatment. In this study N = 14 participants with a diagnosis of avoidant personality disorder were recruited. Two sets of judges coded one session for each participant. An inverse association was found between the frequency of therapist formulation and outcome. Negative interactions around formulation delivery, e.g., hostility were identified. Formulations were found to be associated with negative outcomes. It was identified that when therapists pursued interpretations, they were met with higher hostility. Therapists with better outcomes were found to be more sparing with formulation.

Gladwin and Evangeli (2013) employed an SCD to address the potential impact of therapeutic formulation letters on client's symptoms of anorexia. The sample was n= 15. For five of the participants there was a significant increase in weight gain post receipt of formulation. Further analysis indicated that reduced comprehensiveness or simplicity of formulation was associated with better outcomes. Findings should be treated with caution due to the low sample size and lack of controls, but the finding indicates that the complexity of a formulation may moderate its impact. It is foreseeable that higher complexity could result in negative outcomes such as reduced understanding.

Nattrass, Kellet, Hardy and Ricketts (2015) conducted a study using CBT therapy as usual with (N=29) participants with Obsessive Compulsive Disorder (OCD). Formulation and post-formulation phase mean outcomes on measures of symptomology, distress and alliance were measured. It was demonstrated that there was a significant impact upon distress and alliance in favour of the formulation phase, when comparing the formulation phase to the assessment and post-formulation phases. There were no significant findings for the quality of formulations or for difference in phases relating to symptomology. Limitations of this study included that there was no control group, which means that differences between phases may be explained by other confounding variables occurring

during the formulation phase. Additionally, there was no effect size provided regarding the degree of impact.

6.3 Single Case Design Formulation Research.

There are two key SCD studies in the formulation outcome literature that both used Cognitive Analytic Therapy (CAT), Evans and Parry (1996) and Shine and Westacott (2010). Evans and Parry (1996) assessed the short-term impact of CAT formulation upon individual problems, therapeutic alliance and perceived helpfulness and Shine and Westacott (2010) measured the impact of formulation upon therapeutic alliance, formulation and individual difficulties. Quantitative methods for both studies, which included between session measures of working alliance, demonstrated no impact of formulation upon any of the measures used. However, additional qualitative aspects of both studies demonstrated benefits associated with formulation. Shine and Westacott (2010) used template analysis to synthesise the themes of: feeling listened to, gaining insight into difficulties, experiencing acceptance and having something tangible (in relation to the written formulation). In the Evans and Parry (1996) study, a theme of improved insight relating to formulation was identified.

Both papers commented on the presence of formulation processes throughout therapy, e.g. that content explicitly outlined in product formulations was being considered and addressed from session one, prior to the creation of a letter or diagram. The authors expressed that the formulation products appeared to highlight fluid formulation processes, rather than acting as isolated interventions, which they considered might explain why there were no differential impacts of product formulations demonstrated, as compared with other sections of therapy that were evaluated. It is also possible that failure to detect any impact of formulation delivery was related to the proximity of measures used (e.g., between sessions rather than within sessions).

6.4 Summary of Outcomes Research

In summary, the literature in this area is characterised by studies with different aims, including investigating formulation's impact upon working alliance and therapy outcomes (such as symptomology), as well as considering the moderating effects of formulation

frequency, accuracy and quality. With the exception of Hoglend et al. (2008) papers have used small samples that lacked control conditions, limiting the generalisability of findings. The main findings from the psychodynamic literature outlined (e.g. Hoglend et al., 2008; Piper et al., 1991; & Schut et al., 2005) indicate that higher levels of formulations may be associated with negative outcomes. Mixed findings were found in relation to the role of client's interpersonal functioning, with some data indicating that interpersonal functioning positively moderated the impact of formulations and other data indicating the inverse relationship. This may be due to a number of factors that weren't controlled for such as the manner in which the formulations were shared, as was considered in Schut et al. (2005), defined in terms of 'affiliation'. Overall when reviewing the whole body of outcome research pertaining to formulation, a broader picture emerges of formulations therapeutic function indicating both a positive and negative potential of formulation, with indication of a number of moderators such as individual differences (e.g., interpersonal functioning), complexity, accuracy and quality. However, there is insufficient validation of these benefits due to the sheer lack of research data outlined. It is possible for instance that those benefits and negative impacts of formulation may only apply specific populations e.g., OCD, and personality disorder clients and much more research is required to draw clear inferences.

6.5 Qualitative Studies

There have been a range of qualitative studies undertaken to address client experiences of formulation. It should be noted that a handful of studies have been conducted with findings that clients have markedly different responses to formulation. Daniels, Gresswell, Dawson & Braham (2018) in an unpublished systematic review of the qualitative literature concluded that formulation is contextualised by the therapeutic alliance and is thus neither consistently positive nor negative.

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7. Extended Method

Further information is provided in this section pertaining to the thesis journal paper's methodology. This includes consideration of the author's critical realist stance underpinning the method chosen, as well as full disclosure of ethical considerations and signposting to approval documentation contained in the thesis appendix. Additionally further information and justification for the use of framework analysis in the journal paper is provided.

7.1 Epistemological Stance

I broadly identify my epistemological position as a critical realist. Critical realism assumes that knowledge is fallible and transient, as evidenced by the ever-changing nature of knowledge over time and across communities (Archer, Bhaskar, Collier, Lawson, & Norrie, 2013). In contrast to a relativist position, the critical realist posits that there is an objective reality, the sum of which is greater than its constituent parts. From this perspective, levels of reality (such as social interaction) emerge from and interact with other levels of reality (Elder-Vas, 2005). For instance, whilst it would be inappropriate to talk about a construct such as 'feeling heard' at an atomic level (considering the interactions of particles), because the very ontological nature of feeling heard involves emergent properties of multiple levels of reality (only one of which is atomic), e.g., consciousness and social interaction. From a critical realist perspective, these multiple entities can only be understood partially from any one epistemological approach. This can be analogised to looking at a model of a three-dimensional city, surrounded by a box with holes in all its sides. Looking through any of the holes in the box would allow partial and incomplete knowledge of the city. In addition, due to human limitations, no one would be able to simultaneously hold all the perspectives in mind at the same time, as is the case according to critical realism when observing any phenomena through any one epistemology, with all being incomplete and fallible (Archer et al., 2013).

This mixed-methods project methodology is congruent with the author's epistemological position, integrating quantitative and qualitative methods to study the ontological entities of interest e.g. working alliance and engagement. This includes engaging with deductive and inductive methods to obtain another perspective of the impact of formulation, with consideration of how this fits into the wider data identified within the extant literature.

7.2 Overview and Rationale for Use of Framework Analysis

Framework analysis was developed by Ritchie and Spencer (1994). Framework analysis is a pragmatically, rather than theoretically driven approach. Richie and Spencer outline that whilst the approach may generate theory, the purpose of framework analysis is to describe and interpret data sets. Additionally, framework analysis is characterised by flexibility, permitting analysis throughout collection or as a whole, with use of full transcripts or field notes (Srivastava, & Thomson (2009) Unlike other approaches framework analysis permits the use of a priori queries to be addressed throughout the process, providing these do not force out contradictory data, allowing for a synthesis of both a priori queries and emerging data.

Richie and Spencer (1994) outline the following characteristics of framework analysis it is (1) grounded and based upon the original data and the subjects to which that data pertains; (2) characterised by its openness to revision throughout the process e.g. from stage one to five; (2) systematic allowing uniform application of established frameworks via the indexing and charting process; (3) comprehensive: facilitating analysis of the full data set; (4) easily accessible, with the charting stage creating an audit trail from the point of the original source material to the final thematising and mapping; (4) facilitates within and between case comparison in a helpful chart system.

It was considered that framework analysis is not as well established as some of the other forms of qualitative analysis routinely used in psychology such as thematic analysis and interpretative phenomenological analysis (IPA), which are underpinned by strong theoretical coherency and guidelines for analysis (Parkinson, Eatough, Holmes, Stapley, & Midgley, 2016) However, the primary rational for using framework analysis for the purposes of this study was firstly framework analysis's flexibility and pragmatic stance. It was considered that this approach would provide data that could be readily integrated with the

quantitative elements of the journal paper. Secondly it was considered that framework analysis's approach to addressing both a priori questions and emerging deductive considerations was apt given the clear focus of the journal paper's aims in identifying examples of engagement and disengagement.

Additionally, for the purposes of this mixed methods study, the emphasis in the model upon charting different types of responses meant that these could be quantified between and within participants for analysis pertaining to research question four (*Across cases, is greater positive responsivity to formulations [as determined by higher working alliance scores and engagement versus disengagement] broadly associated with greater improvement in wider-therapy outcomes?).*

Finally, the epistemological emphasis of framework analysis on describing what is happening in the data, as opposed to generating a theory, was in line with the functional purposes of this study, to consider the impact (if any) of formulation upon immediate participant responses.

7.3 Ethics

This study was a secondary analysis of data obtained for an earlier study (Daniels et al., 2018), for which permissions were granted for reanalysis from the author (see Appendix H). The author for the original study had already obtained Health Research Authority (HRA) approval for secondary analysis to take place (Appendices J and K) subject to consent being provided for clients, which was obtained by the author of the original study and placed upon the clients clinical notes, not attached here for confidentiality purposes. I (the author of this study) obtained ethical approval for secondary analysis through the necessary persons: The School of Psychology Ethics Council (SOPREC) at the University of Lincoln (See appendix I and L).

As this was a routine extension secondary analysis, it was considered that there were no further ethical concerns: as the primary researcher I had no access to the client's personal information other than data that had already been anonymised. Additionally those clients who had agreed to allow their data to be used for re-analysis were the only ones whose recordings were used. In line with the original arrangements made for the study, audio was kept on an encrypted drive and will be returned to the School of Psychology upon completion of this project.

8. Extended Results

A further exploratory question was considered: *are there identifiable themes of formulation content within and between participants post formulation immediate verbal responses and are these associated with differential patterns of responsivity?* These were initially scrutinised as detailed in the coding notes (appendix B) under the heading Formulation Content. However, it was considered that there was significant temporal overlap (outlined in the D*ata Analysis* section of the main paper) wherein five minute segments of session content contained multiple formulations. This would make it impossible to separate the impact of any particular content upon working alliance responses. Additionally, difficulties were considered in regards to establishing clear themes across participants due to the heterogeneity of content observed between and within participants.

9. Extended Discussion

9.1 Therapeutic Alliance

The findings outlined in the journal paper, within the context of the wider literature indicate that any association or impact of formulation upon working alliance is equivocal. Across the literature there is not a consistent finding that formulation impacts upon measures of working alliance. The findings outlined in the journal paper discussion demonstrated a proximal, small and uncertain negative impact of formulation upon working alliance. These findings are reconcilable with the findings of other single case design research, investigating the association between formulation and working alliance, including Shine and Westacott (2010) and Evans and Parry (1996). In these studies no quantitative impact of formulation activity was detected at the sessional level. As stated, whilst this study did find a replicated, negative impact of formulation upon working alliance, it was in the 'questionable range' and would foreseeably become untraceable if evaluated between sessions, perhaps reflecting a dispersion of the small effect detected in this study at the in-session, more proximal level. This is perhaps what happened with Daniels et al. (2018) original study on which this research was based (using the same data set) with no demonstrable association found between formulation frequency and therapeutic alliance (when measured between sessions using a self-report measure of working alliance, as outlined in journal paper). However, it should be noted that in the Daniels et al. (2018) research, initial identification of formulation activity was not considered at the within session level. It could be that following initial identification, specific formulations (that were found to have an impact of working alliance) could be tracked using a time series approach, to consider latent or accumulative impacts of formulation upon alliance.

The findings in this journal paper are in also line with findings from the psychodynamic literature (e.g, Hoglend 1993; Hoglend et al., 2008; & Schut et al., 2005) including negative responses to formulation, with findings (see extended results) that some instantiations of formulation were pursued despite negative alliance responses. Additionally participant three, who exhibited the most

disengaged responses was provided with the most formulations and had the worst outcomes. Whilst this wasn't a specific line of enquiry in this research, it is congruent with replicated psychodynamic findings regarding higher concentration of formulations being associated with negative outcome (e.g. Schut et al., 2005). However, given the low sample size and lack of controls this finding should be treated with caution.

In terms of the findings in this paper of specific formulations registering decreases in working alliance, it should also be considered that formulations that increase alliance, may not necessarily be useful for alliance in the longer term and conversely formulations that do decrease working alliance temporarily may not provide a long term benefit. Regardless of which psychological model is used in therapy, it is inevitable that difficult topics will need to be approached and foreseeable that clients with self-referential biases may exhibit defensive or avoidance strategies that need to be managed. Conversely, brief improvements in alliance may represent the therapist saying things that collude with avoidance of painful emotions, but don't enhance understanding or usefully challenge difficulties.

It may also be that the current paradigm outlined within the extant literature, of considering the impact of formulations, whether in terms of frequency, quality, or temporal proximity (in-session, between session, etc.) may be asking the wrong question about the formulation. As suggested by Bieling and Kuyken (2003), more productive areas of enquiry might include investigation of whether formulation enhances the choice of a specific approach or intervention. Additionally, other indirect benefits of formulation could foreseeably indirectly impact upon the client-therapist relationship and wider outcomes of therapy. These include, the therapist's improved relational response to the client due to increased empathy or understanding facilitated by clinical formulation.

9.2 Engagement

Generalisable findings across participants regarding the impact of formulations on engagement in this study demonstrated that engagement was generally elicited approximately seventy percent of the time, following formulation delivery. The client with the best outcomes demonstrated the highest levels of

engagement. This was in contrast to the client who exhibited the most verbal disengagement, who evidenced the worst therapy outcomes. It is hypothesised that this demonstration of higher levels of engagement may be a useful clinical finding, in that post formulation verbal engagement may be a predictor of clinical outcomes. However, this finding may also been caused by/associated with other processes that were not investigated within this research such as individual differences between clients (e.g., level of agreeableness/engagement generally) that may have had a formulation-independent impact on outcome. This finding of engagement responsivity to formulation is in line with the findings of Schut et al. (2005) outlined above, wherein clients who demonstrated more positive engagement (in terms of affiliation following formulation processes) made bigger improvements in therapy.

Formulations may have provided an opportunity for clients to engage in discussion and reflection regarding key factors relating to their difficulties, pointing to opportunities to revise unhelping ways of thinking and behaving. This is in line with the arguments made by Ryle and Kerr, (2002) and Kuyken, Padesky, & Dudley (2008) who emphasised the importance of collaborative formulation development. Another possibility is that the client who engaged the most in post formulation discussion may have countered avoidance processes, leading to opportunities to engage in new ways of thinking and behaving associated with improved mood and wellbeing.

9.3 Limitations

There were a number of limitations to this study. Firstly, the lack of control condition (e.g. baseline condition for each participant) precluded the opportunity to isolate key components/independent variables in order to ascertain the directionality of any potential effects of formulation, limiting findings to association only. In addition to post-formulation engagement and working alliance, other events across the course of therapy may have also elicited engagement and trends of working alliance improvement or deterioration (e.g. questions asked in therapy and key therapeutic techniques). These were not differentially assessed, which limits any

ability to contrast examples of engagement and trends of alliance with other phenomena in therapy, in order to consider formulation delivery in context.

A further limitation of this research is that whilst the consistent use of ABC formulation delivered within therapy is arguably a strength, in terms of consistent operationalisation and measurement, it is foreseeable that in clinical practice practitioners would not be using formulation as rigidly. Arguably doing so limits creativity and responsivity to the individual needs of each client. However, an alternative hypothesis is that the uniform use of a formulation framework enhances fidelity qualities (e.g., to a therapeutic model such as CBT) and provides therapeutic structure for the client.

Finally the exclusive recruitment of clients with low mood in this study, whilst helpful for considering a particular population/presenting difficulty, may reduce the generalisability of findings regarding formulation. Cognitive difficulties outlined, including self-referential biases and negatively valenced cognitions may affected how participants responded to formulations, perhaps being more prone to perceiving formulations as critical in nature. This consideration may go some way to explaining the small negative, association identified between formulation delivery and working alliance. Whilst studying this population is helpful, future research might also consider the therapeutic implications of formulation with other populations for comparison purposes.

9.4 Future Research

It is important to follow up on effects identified in the research relating to formulation which may moderate therapeutic benefits. From the available research these include: (1) the impact of client factors including interpersonal difficulties (Hogland et al., 2008); (2) the quality and comprehensiveness of formulations (Gladwin & Evanegli, 2013); (3) whether engagement with, immediate response to formulation, compared with other therapy phenomena is predictive of wider outcomes. Additionally, it is important to follow up of the small association of formulation identified in this study is replicated when using within session measures of alliance, and whether activity identified at this level is associated with wider or accumulative trends in alliance.

As outlined in the journal paper discussion, the use of further SCD designs can overcome some of the pragmatic difficulties relating to underpowered studies.

In addition to the above, considering different paradigms of formulation research is important. Formulation could foreseeably confer a benefit to the therapist (impacting client interactions) and help in the choice of therapy/approach used. Related to this, the literature outlined in this extended paper regarding therapist expertise, training and the impact of cognitive biases is highly relevant to clinical formulation/conceptualisation used in everyday practice. Better understanding of these processes and novel techniques to enhance/mitigate their effects would foreseeably impact positively on client care and warrants future research.

10. Critical Reflections

10.1 Influences and Motivations

My interest in clinical formulation stems from having spoken to a clinical psychologist before I began clinical training. At the time I was struggling with personal difficulties associated with experiences relating to my family, my faith community and a romantic relationship. I found talking with this psychologist to be enormously validating. Additionally, I found the conceptualisation the psychologist provided was coherent and compelling. We considered the role of my core beliefs and how these had been shaped by experiences and techniques that I might use to overcome these difficulties. As an individual the face validity of this explanation was profound.

Having gone on to study a psychology degree, worked for hundreds of hours with clients and following three years of doctoral study, I am (perhaps unfortunately) more critical of this experience than I was before. On one hand I accept the explanation that the psychologist provided. He essentially referred to an established CBT based model of a diagnosis I had been given, with consideration of how this mapped onto my experiences. I still agree with this aspect of the explanation.

He (the psychologist) also used an integrative approach, referring to attachment disturbance to talk about how aspects of relationships were difficult for me. At the

time, I accepted this as a completely correct. However, I would now be more inclined to make sense of the difficulties we discussed with simple normalisation based on my age, which I feel would be less pathologising. Regardless of this, these discussions motivated me to engage in different behaviours and in the same manner that the psychologist had modelled, to treat myself with more compassion. Given the above reflections I now question whether the validity of the formulation was important, or whether it was actually my experience that someone with expertise in their subject heard me and provided me with a feasible explanation of my difficulties that we agreed upon. This provided me with alternative ways of thinking about difficulties in which I felt 'stuck'. Engaging in alternative behaviours associated with my new found perspective was incompatible with the thinking and behaviours I had previously engaged in and appeared to reduce my distress significantly. This new perspective essentially supported more flexibility and less fixation/rigidity around ways of thinking about, and approaching difficulties, something that arguably multiple models and formulations may have achieved.

Having worked across a range of services as a clinician I have experienced that same faith by others in my understanding and ability that I once had in the psychologist mentioned above. However, I have observed a number of different responses, with some clients engaging positively formulation and others engaging with neutrality, much like the responses in the research outlined in this thesis.

My experiences have led me to question whether my own learning history and subjective inclination for wanting to understand myself led to my engagement with formulation. Whist for some individuals, an explanation is of central importance, to others it may be less so and having conducted this study I am now querying what individual differences/experiences might lead to this.

In terms of my use of formulation now and choosing to research it for this project, as an assistant and embarking on wanting to become a clinical psychologist, the construct of clinical formulation really resonated with me. It appealed to me as a way of making complex experiences understandable. Whilst I had observed the difficulties in engaging clients in this process and needing to adapt formulations collaboratively for those who I was working with, I held on to the idea of its utility. On reflection, I think part of my motivation was wanting to prove to myself the

importance of the profession for which I was training to become an accredited member, wanting to have a 'hard skill' set that would provide value within applied health contexts. In hindsight, this combined with my desire to contribute to a challenging subject area that the profession have an invested interested in, combined with my earlier personal experiences outlined, were all drivers for me to pursue this formulation based project.

10.2 Reflections on Initial Beginnings

In developing my initial research protocol I decided to use CAT therapy as a test bed in which to address hypotheses regarding formulation. I considered that this approach, which was characterised by a number of formulation opportunities due to the CAT model's emphasis on 'reformulating' client difficulties and claims made regarding formulation, rendered it an appropriate framework to use.

Perhaps due to the emphasis placed upon formulation by members of my profession, which I experienced via reading literature i.e. from the BPS and through discussion with colleagues, combined with my own experiences, I had always assumed that the psychological formulation was very helpful to patients. However, upon entering the doctorate I engaged in a number of conversations with colleagues who were less convinced of the role of formulation, based on the dearth of literature and their own anecdotal experiences. One of my colleagues expressed that he believed it was actually rhetoric designed to protect the interests of the profession and I remember being particularly surprised to hear a qualified clinical psychologist saying that. This environment facilitated increased critical thinking and enabled me to be less defensive when exploring and discussing this topic.

When reading through the literature around formulation, I was surprised that it was so ill researched. When discussing how to operationalise what formulation actually was as it became apparent to me that this was a very difficult area to 'pin down' and research.

10.3 Doubts

One of the experiences I have had in studying and researching this area of clinical psychology is doubt. The increased engagement of my critical faculties has made it apparent to me that things may not always be what they seem. You might think you have identified or understood something, but then when applying a different analysis/more scrutiny, it becomes apparent that hypotheses that seemed compelling are unsubstantiated. This was the experience I had when listening to the data set. I applied the working alliance inventory as objectively as I was able to, using the anchoring points and instructions. Subjectively I was confident that I had observed a trend of formulation responsivity. However further scrutiny of the overall data set, which involved working with an independent judge, gave me a different perspective. When observing the overall data set, my working hypothesis was disproved and I believe I was using a number of mental heuristics of cognitive biases., including a recency bias (i.e. “I’ve just observed this phenomena, on X number of occasions in the data” characterising my overall view of the data).

When using the working alliance tool outlined, I was aware of a number of factors that may have impacted upon my objectivity. Firstly, my emotional response to the clients, or “transference” to use psychodynamic terminology. On reflection, sitting and listening to the tapes did not elicit the same compassionate and reflective stance that I was used to. I recall that one client in particular elicited challenging emotions in myself that would usually be managed by the contingences of the clinical situation, e.g., I’m sat across from a human being who needs my help. Instead I experienced intrusive judgments regarding client responses. Usually (in clinical settings) a good degree of therapeutic alliance would be present, wherein tasks are shared, and goals are made. Additionally collaborative empiricism takes place, wherein an understanding of the client’s difficulties is co-developed. I wonder if not engaging in these activities led to a reduction of the shared bond I am used to that then exacerbated difficult emotional responses.

Discussion through research supervision enabled me engage a higher degree of critical evaluation in these ratings, underpinned by the awareness of my own emotional responses. Discussing the case with my research supervisor Dr Mark Gresswell, we also considered that I was often empathically allying with the trainee who had conducted the session of CBT. I considered that this was likely to due to it being easy to empathise with this trainee due to out similar situation, e.g., engaging

with challenging behaviour in clients at times, being new to the profession and both having trainee status. Identification of these factors was helpful in us recalibrating the measure for sessions.

10.4 Pragmatics

As with all of the learning made throughout this process, I started from a position of relative naivety in relation to how quickly things could be completed. Namely organising a suitable research site; agreeing a suitable timeline with them as well as a range of other pragmatic factors, such as who would do what and service changes occurring that could foreseeably impact upon recruitment and so on. I also made the mistake of assuming that something that I discussed with a service lead at the start of my course would remain unchanged eighteen months later. When re-approaching the supervisor at this stage, it became apparent that changes to the service that were out of their hands would likely impact the project.

Combined with this were ethical application difficulties that also impeded this process. From hearing one or two people outline that they managed to obtain ethical approval in four to six weeks, I erroneously made the assumption that I would be able to achieve the same. However a number of delays resulted in things being delayed. The number of forms back and forth to resolve these issues eroded my motivation somewhat. Having a second child around this time as well did not help.

My supervisors implored me to continue to seek out ethical approval despite the fact that it was an increasing possibility that we would not be able to use the research site that we had originally identified. We discussed that, even if nothing else it would be helpful for me to follow the process through for experience. I did finally manage to get approval, but unfortunately we were no longer able to employ the research site.

The difficulties I have had with this process have made me think about barriers to clinical psychologists conducting research. During my training I got one day off a week, and granted, whilst I have to balance that with a number of duties, e.g., assignments and admin, and meetings, my observations would indicate that this still provides more availability for research than I have observed my qualified colleagues having. Given how difficult it is just to obtain ethical clearance, let alone plan, organise, gather data etc., it does not surprise me that most applied clinical

psychologists struggle to find time for getting work published, with most examples of research publications being undertaken during clinical training. When I began training I was unsympathetic to this position, thinking that psychologists had simply lost their way following training, but having experienced this research process and having spoken to psychologists who have expressed that they would love to conduct research, but are simply not resourced to do this, I have a lot of sympathy. Additionally I have observed that systemic difficulties, e.g., lack of joined up planning around research for local population needs in mental health services impede clinical psychologists doing research as part of their role.

10.5 The Use of Formulation in This Process

Something that occurred to me whilst listening to the formulations and audio recordings from the data set outlined in this thesis, was the rigid structure that they followed. The trainee who conducted the sessions, a colleague of mine, for the purposes of this research had made the well rationalised decision to follow the ABC structure. Whilst I often agreed with the links made in these formulations, I also observed that the use of repetition in this process at times seemed artificial, in that I wonder if my colleague would have chosen to phrase things in the same way if not for the restrictions of chosen formulation structure. Whilst CBT formulations may be the most researched and theoretically sound, this does not mean that sharing them explicitly will translate into a positive response. Currently I am on placement in child and adolescent services and have to think very carefully about how I will deliver formulations, considering whether this would overwhelm the child an how this would impact on the family and whether this is in line with the child's stage of cognitive development etc. Similarly approaches such as CAT discuss the need to work within the clients zone of proximal development, gradually scaffolding understanding with them (Ryle & Kerr, 2002). The BPS discusses this in their best practice document, wherein they use the metaphor of sharing a road map in stages, as not to overwhelm the person they are giving direction to (BPS, 2011).

I sometimes reflected on what receiving these formulations would be like for the listener. My supervisor once said in a session, something along the lines of: "no one wants their lives reduced to the components of an ABC". Therefore, as discussed in

the discussion section above, research using more integrative approaches to formulation may be more helpful.

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Appendix A - Framework analysis notes and coding notes.

Ref	Formulation	Response	Codes
PT1. S2 2.23	A: Getting into bed – not being able to sleep. B: Thinking why am I not sleeping? C: Anxious	Yeah and then the anxiety starts up. Headache yesterday – really tired yesterday. Late night the night before. Cos I couldn't fall asleep. Tired so I thought I would sleep tonight, but then I didn't.	**Verbal Response: Engage** As demonstrated by: *Verbal agreement followed by an elaboration congruent with the formulation* **Formulation Content:** Difficulty with sleeping
PT1 S2 29.32	A: When you feel as though you're kind of doing things, like taking the kids to school or he doesn't help you out C: That mates you feel angry and later sadness B: your thinking you only want me because I'm of use to you, and you don't feel loved as a person.	Well I think to myself. Well I think to myself – understandably no one wants to wash/clean up its not a fun thing. I don't want him to do it because he wants to, I want him to more do it, because he wants to give me a break. `	**Verbal Response: Engage** As demonstrated by: *Verbal agreement followed by elaboration congruent with the ABC formulation.* **Formulation Content:** Husband not loving her Feeling unloved
PT 1 S2. 31:39	A: When my Dad doesn't come back. Or come and get me or come and see me. C leaves you feeling sad (as a child) B: He doesn't love me/they don't love me.	Yeah, I thought for a long time that my Dad didn't really love me.	**Verbal Response: Engage** As demonstrated by: Verbal agreement followed by elaboration congruent with ABC formulation **Formulation Content:** Dad not being there/not loving me (1). Feeling unloved

PT 1 S2. 37.40	A: Your snappy when having a bad day C: guilty B I'm a crap mum and I'm letting them down,	Definitely yeah. With my eldest son, I can't remember happy memories. I can remember the first few weeks he was born.	**Verbal Response: Engage:** As demonstrated by: *Verbal agreement followed by elaboration congruent with ABC formulation* **Formulation Content:** Struggling with managing demands of children/home life Poor parent appraisal
PT 1 S2. 44.01	A:One of the kids might have a pop at you/be defiant C: Left feeling furious and upset B: your left thinking I can't cope with this. I'm not good enough mum/person. That's cos your glass is overflowing – that's normal – what's normal?	No. I say that all the time, I say I wish I was normal.	**Verbal Response: Engage** As demonstrated by*: Verbal disagreement followed by a response congruent with the formulation.* **Formulation Content:** Struggling with managing demands of children/home life Poor parent appraisal
PT 1 S3. 6.32	Exploratory: "let me talk this through with you" A: Looking at photos of kids C: leaves you feeling anxious and that panic, that moment of panic B: Where's the time gone its gone so quickly What do you think is underneath that? What are the other things going on?	Number of Yes's (minimal encouragers) while therapist is conveying formulation. "I think it's down to the mortality. My life is going, I can't believe I'm XX (age)".	**Verbal Response : Engage** As demonstrated by: *Verbal agreement followed by an elaboration congruent with the formulation.* **Formulation Content:** Panic associated with thinking about children growing up. Mortality/loss.

PT 1 S3. 7:52	A: So for example you might spend time with him then. C: Anxious, panicked or sad when you see him. B: You're thinking I'm not a good mum, I've not done a good enough job.	"I mean I do with him, he came round the other day. He's just got to no quality of life. I don't know what to do to help him."	**Verbal Response : Engage** As demonstrated by: Verbal agreement followed by an elaboration congruent with the formulation. **Formulation Content**: Panic when thinking about children growing up Poor parent appraisal
PT 1 S3. 8.55	B: when you feel as though haven't achieved that rule (re parenting). C: Leave you feeling like a failure A: Ongoing depression and anxiety.	"I do yeah definitely. I struggle" – talks about lack of happy memories.	**Verbal Response : Engage** As demonstrated by*: Verbal agreement followed by elaboration congruent with ABC formulation* **Formulation Content:** Poor parent appraisal
PT 1 S3. 44.23	A: Son if climbing all over me C panicky B: Something bad is going to happen. He might not be around.	"Yeah, that's what puts the panic in. I can't imagine not having this. Nothing I could do about this."	**Verbal Response : Engage** As demonstrated by: *Verbal agreement followed by an elaboration congruent with the formulation.* **Formulation Content:** Something bad is going to happen mortality/loss
Pt 1 S4 12.50	A: I've been poorly C: Uncared for B: you should be looking after me.	Not even because I was there for him. I wouldn't do that to him.	**Verbal Response** : **Engage** As demonstrated by: *No agreement/ neutral response followed by an elaboration congruent with the formulation.* **Formulation Content:** Feeling unloved (3)

PT 1 S4 9:15	A: Sexually active from young age B: If he has sex with me, he must want me. C: Feel shit after	"Yeah – yeah".	**Verbal Response : Neutral** As demonstrated by neutral response only. **Formulation Content:** Husband not loving her/using her (1) Sexual activity when young
Pt 1 S4 15.26	A Husband comes home – doesn't do anything B: He doesn't feel shit C: Eventually you don't feel cared for.	"I do, but then I after I have calmed down I think. I'm being spiteful, he's been at work all day."	**Verbal Response** : **Engage** As demonstrated by: *Verbal agreement followed by an elaboration incongruent with the ABC formulation.* **Formulation Content:** Husband not loving her/using her Feeling unloved
Pt 1 S4 44.39	A: Get home – chaos has kicked off B: Think to yourself, I'm not doing this again what's the point. C: Angry/frustrated	"Yes – yes".	**Verbal Response : Neutral** As demonstrated by: *As demonstrated by neutral response only.* **Formulation Content:** Struggling with managing demands of children/home life

Pt 1 S5. 5.52	A: Him saying that C: making you angry B: because you felt you don't understand I don't feel appreciated.	It's not just that – referring to child being in hospital.	**Verbal Response : Engage** As demonstrated by*: Verbal agreement followed by elaboration incongruent with the formulation.* **Formulation Content:** Husband not loving her/using her
Pt 1 S5 16.43	A: bad week B: actually, I've not done that bad – I've coped C: positive	"Yeah". I think sometimes though when somethings going off even bad things. Somethings going off so it makes you live if that makes sense.	**Verbal Response : Engage** As demonstrated by: *Verbal agreement followed by elaboration incongruent with the formulation.* **Formulation Content:** I have coped
Pt 1 Session 5 29:42	A: She said that (referring to earlier conversation of not being a good mum). B: how dare you suggest that – you suggesting I'm not a good mum. Because you think there's an element of truth that I'm not a good mum. C: Anger and then sadness.	"Yeah". "Questioning yourself am I a bad mum"	**Verbal Response : Engage** As demonstrated by verbal agreement followed by an elaboration congruent with the formulation. **Formulation Content:** Poor parental appraisal. Anger followed by/covering sadness

Pt 1 S6 1:34	A: Things are going well B: You think something bad is going to happen C: makes you feel depressed	Yeah, I do. “Quite weary at the moment winter months – terrified. Working myself up and it’s not going to be good” (regarding mental health).	**Verbal Response : Engage** As demonstrated by: verbal agreement followed by an elaboration congruent with the formulation. **Formulation Content.** Something bad is going to happen
Pt 1 S6 3:54	A: Christmas out the way B: All over now – what a waste of time probably C: Feel Flat about it, feel depressed. Your interpretation. Importance of thoughts. Is there another way you could think about that period?	That’s what I’ve been trying to do thinking. I could think positive things like now Christmas is out of the way I could think about sprucing the house up for summer.	**Response: N/A*** *No chance to respond. **Formulation Content:** Psychoeducation re CBT principles
Pt 1 S6 21:21	A: When you’re not doing very much – not going out the house and doing very little B: Reinforcing negative thoughts that you are having of not being good enough at home being a bit of a skivvy by doing jobs and things like that C: Feeling depressed, feeling flat.	“It does. I know that it does” making further references to activity.	**Verbal Response : Engage** As demonstrated by: verbal agreement followed by an elaboration congruent with the formulation. **Formulation Content:** Not doing much You’re not good enough/skivvy

Pt 1 S6 33:40	A: Stood standing at the sink B: All I'm useful for is basically been a skivvy for everyone else C: Makes you feel rubbish about yourself	"It does yeah I clean the kitchen in the morning and afternoon. Next day it doesn't look like it's been cleaned"	**Verbal Response : Engage** As demonstrated by: verbal agreement followed by an elaboration congruent with the formulation. **Formulation Content**: Topic (not doing much) Not good enough/skivvy)
Pt 1 S6 38.58	A: If we do something B: If we were to think to ourselves I really achieve something there that was something positive for myself C: That would make us feel better	"I wanted to get on those scales on Wednesday. (in relation to recent attempts at weight loss)."	**Verbal Response: Engage** As demonstrated by: No agreement/ neutral response followed by an elaboration congruent with the formulation. **Formulation Content**: Psychoeducation re CBT principles
Pt 1 S7 33.28	A: When ** comes home and he does seem tired and he plays on the X Box B: you perceive that as he doesn't care about me and he doesn't love me C: makes you feel frustrated	"It's not just that, like with the kids as well, he says there's nothing else to do".	**Verbal Response: Engage.** As demonstrated by: verbal disagreement followed by a response congruent with the formulation. **Formulation Content**: husband not loving her/using her Feeling unloved

Pt 1 S7 36.08	A: You think about having that thought further down the line (*relating to intrusive image/ fear re bath coming into mind).* B: And think to yourself This isn't normal there is something wrong with me, C:which leaves you feeling anxious,	Got over the bath thing……. So now I'm thinking I don't want to go lay in bed with him.	**Verbal Response : Engage** As demonstrated by: No agreement/ neutral response followed by an elaboration incongruent with the formulation. **Formulation Content**: Intrusive thoughts (1). Something wrong with me (1)
Pt 1 S7 47.45	A: When things feel okay and are going steady B:Start thinking something bad is going to happen C: Makes you feel anxious because you're pre-emtping that something bad is going to happen	But I'd actually not been my disastrous thinking self. I'd been okay for a week or two	**Verbal Response : Engage** As demonstrated by verbal disagreement followed by elaboration incongruent with the formulation **Formulation Content.** Something bad is going to happen
Pt 1 S9 7.19	Our body starts reacting A: Your feeling the adrenaline B: My body is going into some kind of fight or flight response C: Anxiety unsettled Psychoeducation provided	"yeah" You can control your thoughts to a degree, but …..it will just be there for no reason".	**Verbal Response : Engage** As demonstrated by verbal agreement followed by elaboration incongruent with the formulation. **Formulation Content**: Physical symptoms of anxiety and appraisal of these

Pt 1 S9 12.57	A:We could both get that adrenaline rush that feels uncomfortable. B: You could interpret that as you know like we've said, you think my anxiety is coming back I won't be able to cope C: that leaves you feeling anxious/unsettled or potentially quite down I could have that adrenaline rush and I could think actually this is going to be fine, this is completely normal my body is just responding to stress – feel more settled.	"Yeah … and that's what I do, but I do that, and when it started the first day, I thought for fucks sake, I thought no its alright I've gone with it, but it's not stopped its carried on."	**Verbal Response: Engage** As demonstrated by verbal agreement followed by elaboration incongruent with the formulation **Immediate Response:** Physical symptoms of anxiety and appraisal of these
Pt 1 S9 27.25	A: When you're having this experience B:You think it's not right it's not normal C:Leaves you thinking anxious Given what's happened isn't that a normal response?	"I don't know because even if this hadn't gone on... had these feelings for years"	**Verbal Response: Engage** As demonstrated by neutral response followed by elaboration incongruent with the formulation. **Formulation Content:** Physical symptoms of anxiety and appraisal of these
PT 2 S2 18:58	A: Pop out and see a friend or do something with your daughter C: Feeling nothing at the time Makes you frustrated B: Thinking I should be feeling something why aren't I, there's something up with me, what the point if it's going to be like this forever cos nothings changing	"Hmmmm hmmmmm Oh is it?"	**Verbal Response: Neutral** As demonstrated by Neutral response only **Formulation Content:** Feeling nothing What's wrong with me/I should be feel different.

	That negative thinking pattern. Common in depression		
PT 2 S2 30:33	A: You might go with X for a walk or whatever C: Feeling low B: Thoughts around she doesn't understand me as well as she used to or I'm not feeling myself or I feel lonely.	"No we just… I always thought…I mean I could talk the hind leg of a donkey we've never had any trouble talking and sometimes she comes and I think what am I gonna talk about…."	**Verbal Response: Engage** As demonstrated by verbal disagreement Followed by elaboration incongruent with the ABC formulation. **Formulation Content.** Feeling low
PT 2 S2 31.39	A: Say for example he comes to give you a cuddle and then C: you don't feel like close to him and you say go away and then you B: might think what's wrong with me why don't I want that closeness.	"Oh yeah, it does". Followed immediately by discussion about what is ordinary	**Verbal Response: Engage** As demonstrated by verbal agreement followed by an elaboration congruent with the formulation. **Formulation Content**. What's wrong with me/I should be/ feel different.
PT 2 S3 22.17 to 22.38	A: You've got the radio on. Trying to sing along B: Distracted by all these thoughts going round and round your head and your thinking to yourself: oh for god's sake you know why does no one else feel like this This is weird I shouldn't be thinking like this, I should be doing this or I should be doing that, or I should just	"Well it does, it frustrates and angers me. And I'm thinking well how can I be frustrated and angry when I don't seem to have any emotions or feelings."	**Verbal Response: Engage** As demonstrated by Verbal agreement followed by an elaboration congruent with the formulation. **Formulation Content.** What's wrong with me/I should be/ feel different

	be able to listen to the radio, not think about that. C: Makes you feel, probably quite depressed or annoyed with yourself or you might feel really frustrated		
Pt 2 S3 37.29	A: you get up in the morning Feeling steady Let's say rather than nothing your steady everything on a flat. B: "This isn't normal for me" (from client's perspective), C: This interpretation leads to you feeling depressed. Feeling like useless or abnormal, which makes you frustrated, it makes you feel down, you either want your salty or sweet.	"Yeah" (repeatedly) "Honest, till you said it, I've never thought of being in the middle".	**Verbal Response. Engage** As demonstrated by verbal agreement followed by an elaboration congruent with the formulation. **Formulation Content.** What's wrong with me/I should be feel different
Pt 2 S3 42.50	A: My granddaughter runs in she jumps on me and gives me a kiss (from the client's perspective). B: You're thinking to yourself, why am I not feeling anything, I should be feeling something. I should be feeling like this. Again comparing to I should be feeling gushy. C: Makes you feel depressed. I might just think that, that's not me.	"hmmmmm"	**Verbal Response. Neutral** As demonstrated by neutral response only **Formulation Content.** What's wrong with me/I should be feeling different

Pt 2 S3 50.30	A: In the shop woman being rude B: She's not doing her job properly, C:Angry That's an emotion	Laughter and agreement and then elaborates on the situation in the shop in relation to emotions.	**Verbal Response: Engage** As demonstrated by verbal agreement followed by an elaboration congruent with the formulation. **Formulation Content.** You experienced an emotion
PT 2 S4 22.30	A: Vicious cycle (re situation of not going out). B: I might do something different. (Followed by), I can't be bothered with this and C: you don't end up doing it, you end up feeling worse	"Yeah, I've got two parts of my brain". Client provides metaphor of battle with herself.	**Verbal Response: Engage** As demonstrated by verbal agreement followed by an elaboration congruent with the formulation. **Formulation Content**. Don't engage in behaviours due to lack of motivation.
PT 2 S4 23.08	B: I'm guessing that when you say you can't be bothered A: and don't do it C: you feel rubbish. Contrasts this and broaches a question.	"Not really. I don't feel any different at all. My heads on overtime, spins on a loop."	**Verbal Response: Engage** As demonstrated by verbal disagreement followed by elaboration incongruent with the ABC formulation **Formulation Content**. Don't engage in behaviours due to lack of motivation
PT 2 S4 32.53	A: You have your mundane routine B:This is pointless C: Leaves you feeling flat So why is this different for X (husband)?	Answers question from husbands perspective. He would have nothing.	**Verbal Response: N/A** Doesn't respond to formulation – no opportunity to do so.** **Formulation Content:** Mundane routine

PT 2 S4 54.06	A: Something on TV, C: Which is funny and everyone else is laughing Your laughing, that's your reaction to it so you do laugh B: I should be feeling something different like I used to, I'm laughing, but I'm not feeling how I should be feeling. "Need to work with this and challenge it". Contrasted with husband's experience	Hmmm yes. Asks when thought challenging diary will start.	**Verbal Response: Engage** As demonstrated by verbal agreement followed by an elaboration congruent with the formulation. **Formulation Content:** What's wrong with me/I should be feeling different
PT 2 S5 13.25	A: Your kinda there (in relation to degree of engagement in activity). C: I'm not going to enjoy this it's going to be a waste of time B: Leaves you feeling flat	Yeah yeah I said to X, thoughts never switch off. Discusses efforts made and increased determination.	**Verbal Response: Engage** As demonstrated by verbal agreement followed by an elaboration congruent with the formulation. **Formulation Content:** Negative predictions leading to low mood.
PT 2 S5 27.34	A:Busy week C: Actually I'm doing alright here, I'm making these steps. B: Made you feel proud and determined to continue next week.	Hmmm "next week hasn't come".	**Verbal Response: Neutral** As demonstrated by neutral response only **Formulation Content**: Positive appraisal leads to positive emotional/behavioural outcome
PT 2 S5 27.50	A: Alternative would have been you've not done these things C: Left you feeling down and a bit like a failure wouldn't it? would have made you depressed B: I knew I couldn't do it, I told you I'd let myself down, it would have fed into that 'I'm no good at anything' and it's a waste of time." Therapist praises client, mentions being "proud".	I feel like I've succeeded in something.	**Verbal Response: Engage** As demonstrated by no agreement/ neutral response followed by an elaboration congruent with the formulation. **Formulation Content** Negative prediction leads to negative emotional/behavioural outcome.

PT 2 S5. 35.50	A: You go out and do things you say you're enjoying it, rating is quite high for enjoyment. B: You interpret it as: I should be feeling more so C: therefore that's why your feeling low afterwards But for me I wonder if it's because you're not allowing yourself to enjoy it	Hmmm in agreement	**Verbal Response: Neutral** As demonstrated by neutral response only **Formulation Content:** Topic: what's wrong with me/I should be feeling different
PT 2 S6. 40.16	A: You feel connected with Rachel when she comes. After she's gone I really enjoyed myself I feel connected with her	I've been saying to myself all week you're not doolally. Discusses how her support worker makes her feel normal and time spent together.	**Incomplete ABC.**
PT 2 S6 42.44	A: Now you're in the middle (re mood). C: Your feeling flat B: This isn't right for me, I'm not used to this, there something about this that isn't normal.	"hmmm" "how do I change it?".	**Verbal Response: Engage** As demonstrated by no agreement/ neutral response followed by an elaboration congruent with the formulation. **Formulation Content:** Being in the middle of the moods.
PT 2 session 7 21.06	A: When your like sat around in the house in the day time and B: you think about those times, "well I really miss being like that, back then I used to feel those emotions and got a real buzz from it" C: Sad Grieving that loss all the time. Lost a part of	Hmmm repeated. Change of subject "I say That come on I went to see XX *singers name".	**Verbal Response: Disengage** As demonstrated by neutral response followed by elaboration unrelated to the formulation. **Formulation Content:** Enjoying highs in mood.

	you, by not being manic anymore..		
PT 2 session 8 20:11	A: Sat there, your thoughts are going round and round your head. C: Feeling silly B: No one else thinks what I think. Why am I like this?	"I know **** always use to say to me. I see people who are ordinary and she said: how you know they are ordinary they could be going home and getting beaten up their husbands."	**Verbal Response: Engage** As demonstrated by verbal agreement followed by an elaboration congruent with the formulation. **Formulation Content:** What's wrong with me/I should be feeling different
PT 2 s8 21.38	A: In middle (re mood) B: Interpreting being in the middle C: Leaves you feeling flat	"Never been in the middle. We've talked about that, Yeah"	**Verbal Response: Engage** As demonstrated by verbal agreement followed by an elaboration congruent with the formulation.
Pt 3 S1 35.05	A: People called you those things, calling you lazy C:Leaves you feeling shit B: Beliefs about yourself of like, I'm useless and I can't do anything and I'm unworthy.	"Yeah I know Yeah I was getting that everyday"	**Verbal Response: Engage** As demonstrated by verbal agreement followed by an elaboration congruent with the formulation.

Pt 3 S2 6.10	A: Particularly stressful day C:Feeling crappy B:You notice you Start scratching without realising. "I've been scratching my head and I haven't noticed" Do you always feel better afterwards?	I know that if I'm having one of my bad heebie-jeebies fits, it's like a release.	**Verbal Response: Engage** As demonstrated by: No agreement/ neutral response followed by an elaboration congruent with the formulation. **Formulation Content:** Scratching head whilst unaware
Pt 3 S2 12.16	A: In that situation when the potatoes didn't cook in time for you and they took longer than you wanted, B: that left you feeling kind of all of this out of control[35] C: and overwhelmed you had this feeling of anger	I was angry I was upset I was everything	**Verbal Response: Engage** As demonstrated by: No agreement/ neutral response followed by an elaboration congruent with the formulation **Formulation Content:** Feeling of being overwhelmed/angry
Pt 3 S2 18.19	A: When people make comments to you that you look okay and that everything is going alright. C: You feel angry B: because you thinking to yourself you have no idea what I'm going through you haven't got the faintest clue.	"No. I'm not been funny but people who sit there and fucking whinge at me I'm just like, I've got certain friends who I talk to about my problems. And then I've got people who dump on me."[36]	**Verbal Response: Engage.** As demonstrated by: verbal disagreement followed by elaboration congruent with the formulation. **Formulation Content**: Feelings of overwhelmed/angry

[35] A thought phrased as a feeling.
[36] Congruent due to addressing people eliciting anger.

Pt 3 S4 14.41	A: If you were to not cope and show that to other people B: Then that would confirm that belief that you're a weak person. C: You try and fill that void by being strong. Over compensating. Too painful. In addition discusses rules for living.	"When you do, when you rely on other people all they do is shit on you".	**Verbal Response Function: Engage.** As demonstrated by no agreement/ neutral response followed by an elaboration congruent with the formulation. **Formulation Content:** Weakness/vulnerability – overcompensating.
	Incomplete formulation – links to developmental experiences – compensation for daughter.		N/A
Pt 3 S4 36.50	A: *** said those things that criticised your ability to parent B: Even though Your thinking to yourself that's complete shit, I've done a good job, I've done this C: Angry, quickly comes back round to you feeling shit because your B: thinking maybe I haven't done a good job.	She's even turned around and said that the fact that I'm trying to encourage **** to move away, is because I don't want her around.	**Verbal Response: Engage.** As demonstrated by no agreement/ neutral response followed by an elaboration congruent with the formulation. **Formulation Content:** Feelings of being overwhelmed/angry Questioning ability to parent
Pt 3 S4 47.21	A: You didn't want to go X B: You think – if I don't go people are going to talk about me, C: And that's going to make me feel shit	But you know what, I've been sat there when they've done it about other people.	**Verbal Response: Engage.** As demonstrated by no agreement/ neutral response followed by an elaboration congruent with the formulation. **Formulation Content:** Being judged by others.

Pt 3 S4 49.23	A: You're doing all these things (outlines busy week). B: You're doing them because you think. I don't want to let these people down because they're going to think I'm a bad friend, lazy and that I can't be bothered C: Which will make you feel shit. This week on the Sunday and Monday, you spend all day in bed because your in pain your thinking to yourself. B:God I'm useless, I can do anything, I'm now bed ridden myself C: which makes you feel shit.	I weren't even right on Wednesday even people looking at me going: should you really be here should you be at home.	**Verbal Response: Engage.** As demonstrated by no agreement/ neutral response followed by an elaboration congruent with the formulation. **Formulation Content:** Anger covering sadness/inadequacy Being judged by others.
Pt 3 S5 09:01	A: This guy posting these things online. C: I wondered if it had triggered a lot of those feelings of shame and sadness. B: You've had those thoughts that people don't truly sad. Comes out as anger to everyone else?	Verbal agreement re triggering shame and sadness. Pause-silence following formulation despite therapist prompting client for response "doesn't it",	**Verbal Response: Disengage** As demonstrated by no response **Formulation Content:** Others cannot be trusted Anger covering sadness/inadequacy/vulnerability (1)
Pt 3 S5 12.17	A: Your core beliefs have been triggered: B: not feeling normal, but you feel like there's something wrong with you. Triggered those beliefs that can't be trusted,[37]	No response/silence following end of formulation with follow up questions.	**Verbal Response: Disengage** As demonstrated by no responses

[37] Thoughts framed as feelings/emotions.

	C: so that actually then underneath that is the sadness, but we see the layer of anger first yea? That's what we need to be working with, that most important, that's what it's left you with? Yeah?		**Formulation Content:** Others cannot be trusted I'm a bad parent Anger covering sadness/vulnerability/inadequacy
Pt 3 S5 23.53	A: Discusses situation of interpersonal conflict. B: Triggered: I'm a shit mum; I can't trust anyone, If anyone too close they'll take advantage of me. Remember we talked about some of those rules. Your rules been violated and when our rules are violated C: we feel vulnerable. When we feel vulnerable we sometimes go two ways. One way Is to attack because we feel vulnerable and the other way is to withdraw. You saw red.	"Yeah I did, I couldn't even stop what was coming out of my mouth".	**Verbal Response: Engage** As demonstrated by verbal agreement followed by an elaboration congruent with the formulation. **Formulation content:** Anger covering sadness/vulnerability/inadequacy
Pt 3 S5 37.40	Incomplete formulation.		

Pt 3 S6 7.35	Incomplete formulation.		
Pt 3 S6 9.15	A: Situation come up with X B: He's lied to me, I can't trust him that makes me a bad mum C: Leaves you feeling upset and guilty	"yep". Goes on to discuss guilt that follows anger.	**Verbal Response: Engage** As demonstrated by: Verbal agreement followed by an elaboration congruent with the formulation. **Formulation content:** I'm a bad parent]
Pt 3 S6 17.38	C: Do you feel that its made you feel shit, B: because its maybe prodding that core belief of I'm not good enough. A: (referring to situation of children "playing us off").	Probably…probably	**Verbal Response: Neutral** As demonstrated by neutral response only. **Formulation Content.** Not being good enough.
Pt 3 S6 19:47	A: The kids have been making/having a few comments that have been chipping away I think and prodding your B: "I'm not a good enough mum" C: which makes you feeling upset.	They've been doing that with X as well, saying mums not coping, and it's been fanning the flames.	**Verbal Response: Engage** As demonstrated by: no agreement/ neutral response followed by an elaboration congruent with the formulation.

Pt 3 S6 27.50	A: For you when people break down that trust so what happened with X and when he lied to you is that your perceiving that, C: it's makes you feel by the sounds of it unsafe, B: because you do question who is trustworthy and who isn't, which for you, knowing from your past experiences has been something that is incredibly important.	I don't trust many people at all, I have really bad issues with trusting people.	**Verbal Response: Engage.** As demonstrated by no agreement/ neutral response followed by an elaboration congruent with the formulation **Formulation Content:** Vulnerability/Weakness/Hopelessness
Pt 3 S6 39.50	Questioning – spread out over time. Incomplete formulation.		
Pt 3 S6 41.57	A: When you have to take a load of tramadol for example B: I'm gonna have to OD to help daughter for the day C: Deep down that makes you feel really quite sad and upset in order to support her. B: And I think that Is because of your thoughts around about yourself that, that you feel weak, underneath all this you're thinking to youself god's sake I can't even support my daughter without having to take all this medication. The future looks completely hopeless if this is what it is going to be like. C: Which is contributing to maintenance of being sad.	Yeah…it's like I was hoping they would sort out the voices in my head when I get stressed out. [Change of subject].	**Verbal Response: Disengaged** As demonstrated by verbal agreement followed by a response unrelated to the formulation. **Formulation Content:** Weakness Hopelessness
Pt 3 S7 1.54	A: I wondered by doing these forms one of the reasons C: why your feeling frustrated and upset is because it's B: triggered some of those beliefs about feeling useless and feeling like a failure is because your caught in this cycle of not being able to change it.	"They don't get the fact from the minute I wake up in the morning to the minute I go to sleep to when I wake up in the night there is no point that my body isn't in pain".	**Verbal Response: Engaged:** As demonstrated by no agreement/ neutral response followed by an elaboration congruent with the formulation. **Formulation Content:**

			Feeling frustrated Misunderstood by others Weakness/vulnerability
Pt 3 S7 3.56	A: Sounds like when you go to X B: you don't feel judged whereas maybe when you feel judged by people like with the school mums, that C: makes you feel really unsafe and vulnerable [38]	"yeah" Outlines how she was able to be herself at the X meeting. "Not judging me, there supporting me."	**Verbal Response: Engaged:** As demonstrated by: Verbal agreement followed by an elaboration congruent with the formulation. **Formulation Content:** People will think badly of me judge me Vulnerability/Lack of safety
Pt 3 S7 8.53	C: Understandably makes you feel very frustrated by A: the process of illness (client's illness omitted for anonymity) and being misunderstood by people and B: these beliefs that you feel judged by people for not being strong enough or good enough yeah, or normal whatever that looks like.	Silence	**Verbal Response: Disengaged** As demonstrated by no Response **Formulation Content:** People will think badly of me/judge me Anger covering sadness/vulnerability/inadequacy
Pt 3 S7 18.37	Incomplete formulation		

[38] perception of judgement being framed as feelings.

Pt 3 S7 25.27	A: By X saying to you: you can't cope without me, C: which leaves you feeling angry and B: you're thinking to yourself "you're an absolute nob head and I'm absolutely fine, you can't cope at all because your living with your mum". C: Underneath that anger again is that pain of you feeling sad. A: So when X says that about you not coping without him, C:underneath that is your upset, because him saying that B: for you means I'm not coping, he thinks I'm not coping and if he thinks I'm not coping that means I'm a shit mum	"He knows I'm coping" Continues to discuss anger and blaming partner for illness.	**Verbal Response: Engaged.** As demonstrated by no agreement/ neutral response followed by an elaboration congruent with the formulation. **Formulation Content:** Sadness/vulnerability/inadequacy. People will think badly of me/judge me Poor parent appraisal. .
Pt 3 S8 5:09	A:Somebody slips up with something C:You feel angry B: Your thoughts are that they let you down, you knew they would, given them a chance, leaves you feeling you want to reject them. Tolerance decreasing.	"Put up with husband and his family no offence but I take that as a right to burn half the fucking world down given the chance."	**Verbal Response: Engaged.** No agreement/ neutral response followed by an elaboration congruent with the formulation. **Formulation Content:** Being let down and not being able to trust others. Feelings of being overwhelmed/angry
Pt 3 S8 9:31	A: When he does behave like that. B: I know you think "I need to have him in my life". C: That leaves you feeling angry.	"I've got to I've got to put up with him. " Outlines aggression toward father.	**Verbal Response: Engage** As demonstrated by no agreement/ neutral response followed by an elaboration congruent with the

			formulation. **Formulation Content:** Anger covering sadness/vulnerability/inadequacy
Pt 3 S8 15.01	C: These times when you feel really angry about things like that A: [regarding acquaintance who also has disability], B: your thoughts are around: They can change things and I can't, I have to tolerate my pain, I have to put up with all of this, but they don't make any changes.	Yeah (shouts) I'm not being funny, but she's got four days of help now.	**Verbal Response: Engage** As demonstrated by verbal agreement followed by an elaboration congruent with the formulation. **Formulation Content:** Feelings of being angry/overwhelmed
Pt 3 S8 19:18	I think when you come here, or when you go see a friend or go and see *** and get really angry, I think underneath that is a lot of sadness, but your thoughts are I can't show my vulnerability or otherwise people will take advantage.	Silence… Talks about not wanting to get up tomorrow for day. [shift of topic].	**Verbal Response: Disengage.** As demonstrated by neutral response /no response followed by a response unrelated to the formulation. **Formulation Content:** Anger covering sadness/vulnerability/inadequacy
Pt 3 S8 26.43	A: When things go wrong if the dog is doing your head in, C: And you feel annoyed, it's because you think, B: everything goes wrong for me, nothing ever goes right. There's something wrong with me.	I couldn't go to X (omitted for anonymity). I couldn't do anything like that this week.	**Verbal Response: Engage.** As demonstrated by: No agreement/ neutral response followed by an elaboration congruent with the formulation. **Formulation Content:** Anger covering sadness/vulnerability/inadequacy

Appendix B – Consent To Use Data for this Secondary Data Analysis Study, from the Primary Author

HD

Hannah Daniels (15591139)
Fri 24/08/2018, 04:05 PM
Robin M Colley (06045306)

Reply all

Hi Robin,

Yes, I can confirm that I give my permission to use my data for secondary data analysis.

Best wishes,

Hannah

On 24 Aug 2018, at 15:59, Robin M Colley (06045306) <06045306@students.lincoln.ac.uk> wrote:

> **Re SOPREC reference: PSY1617276**
>
> Hi Hannah,
>
> As discussed, please reply to this email to confirm that you are giving your express permission for me to use your extant data for the purposes of secondary analysis as outlined in the SOPREC draft form attached.
>
> Kind regards,
> Robin
>
> <School of Psychology Ethics Approval Form_July 2018.docx>

Appendix C – SOPREC Ethical Approval Form for Secondary Analysis.

SCHOOL OF PSYCHOLOGY ETHICAL APPROVAL FORM FOR HUMAN PARTICIPANTS

Tick relevant boxes:
☐ **STAFF Project** ☐ **POSTGRADUATE Project** ☐ **TRACK A**
☐ **UNDERGRADUATE Project** ☐ **TRACK B**
✓ **ROUTINE EXTENSION TO STUDY**

Title Of Project: **Exploring the impact of psychological formulation on working alliance: a mixed methods, repeated single case investigation**

Name of researcher(s) Robin Colley (Previously Hannah Daniels)

Name of supervisor (for student research) Nima Moghaddam Date 22.08.2018

		YES	NO	N/A
1	Will you describe the main procedures to participants in advance, so that they are informed in advance about what to expect?			
2	Will you tell participants that their participation is voluntary?			
3	Will you obtain written consent for participation?			
4	If the research is observational, will you ask participants for their consent to being observed / taped?			
5	Will you tell participants that they may withdraw themselves or their data from the research at any time, that no reason needs to be given, and that they can do so without losing any rewards (if applicable)?			
6	Will you give participants the option of declining to give information they do not want to give (e.g., not filling out all questions in a questionnaire)?			
7	Will you tell participants that their data will be treated with full confidentiality, and stored securely (for 7 years at the minimum) and that, if published, it will not be identifiable as theirs?			
8	Will you debrief participants at the end of their participation (i.e. give them a brief explanation of the study)?			

If you have ticked **No** to any of Q1-8, but have **ticked box A** overleaf, please give any explanation on a separate sheet. (Note: N/A = not applicable)

		YES	NO	N/A
9	Will your project involve deliberately misleading participants in any way?			
10	Is there a realistic risk of any participants experiencing either physical or psychological distress or discomfort? If **Yes,** give details on a separate sheet and state what you will tell them to do if they should experience any problems (e.g. who they can contact for help).			
11	Does your project involve the collection and/or analysis of human tissue including, but not restricted to, saliva, blood or urine?			

If you have ticked **Yes** to 9, 10 or 11 you should normally **tick box B** overleaf; if not, please give a full explanation on a separate sheet.

			YES	NO	N/A
12	Do participants fall into any of the following special groups? If they do, please refer to the appropriate BPS guidelines, and **tick box B** overleaf. **Please note that you may also need to gain satisfactory CRB clearance or equivalent for overseas participants.**	School children (under 18 years of age)			
		People with learning or communication difficulties			
		Patients			
		Those at risk of psychological distress or otherwise vulnerable			
		People in custody			

		People engaged in illegal activities (e.g. drug taking)			

There is an obligation on the lead researcher to bring to the attention of the School's Ethics Committee projects with ethical implications not clearly covered by the above checklist.

PLEASE TICK **EITHER** BOX A or BOX B BELOW AND **PROVIDE THE DETAILS REQUIRED** IN SUPPORT OF YOUR APPLICATION, THEN SIGN THE FORM.

Please tick:

A. I consider that this project has **no** significant ethical implications to be brought before the Departmental Ethics Committee.

In less than 150 words, provide details of the study including the rational, the number and type of participants, methods and tests to be used (i.e. the procedure).

Please refer to **SOPREC reference: PSY1617276** and appended SOPREC forms, to which this extension applies. I have the express request of Hannah Daniels (email appended) to use her existing data.
Please also see appended Integrated Research Application System (IRAS) Research Ethics Commitee and Health Research Authority (HRA) forms.

I am requesting to undertake a secondary mixed-methods analysis of existing data acquired for the project outlined; requiring no further contact with participants or acquisition of any further data. Only anonymised data-sets pertaining to participants who previously provided express permission (total three; see permissions template attached, in line with REC and HRA approval) for secondary-analysis will be released to myself the researcher, pending SOPREC approval.

Secondary analysis would be undertaken using mixed methodologies case series analysis congruent with
existing aims and hypotheses, addressing formulation processes in therapy and:

- the quality and content of formulations;

and their impact upon:

- participant engagement and withdrawal behaviours;
- clients thinking and insight.

Both as evidenced by verbal behaviours which have been contained in audio recording.

Consideration will also be given to longer term outcomes including working alliance and existing therapy outcome measures.

This form (and any attachments) should be submitted to the school's Ethics Committee where it will be considered by the Chair before it can be approved.

B. I consider that this project **may** have ethical implications that should be brought before the Departmental Ethics Committee, and /or it will be carried out with children or other vulnerable populations.

Please provide details of the project on an EA2 University Ethics for Human Participant taking into account the following advice:

1. Be clear about the purpose of the project and its academic rationale.
2. Briefly describe the methods / measurements and parties involved / affected.
3. Be clear about recruitment methods, numbers used, age, gender, exclusion/inclusion criteri

handling procedures for field experiments, etc.

4. Include concise statements of the ethical considerations raised by the project (including care and aftercare) and how you intend to deal with them.
5. Include all relevant materials, such as consent form, participant information form, debrief, questionnaire / stimulus materials, letters /posters to recruit, etc.

This form should be submitted to the School's Ethics Committee for consideration.
If any of the above information is missing, your application will be returned to you.

I am familiar with the BPS Guidelines for ethical practices in psychological research, and the University Regulations for Ethical Research (and have discussed them with other researchers involved in the project or my supervisor)

Signed..... Print Name.....Robin Colley.....
Date.....07/09/2018.....
(PG Researcher(s), if applicable)
Email.....06045306@students.lincoln.ac.uk.....

Signed.....
(Lead Researcher or Supervisor)

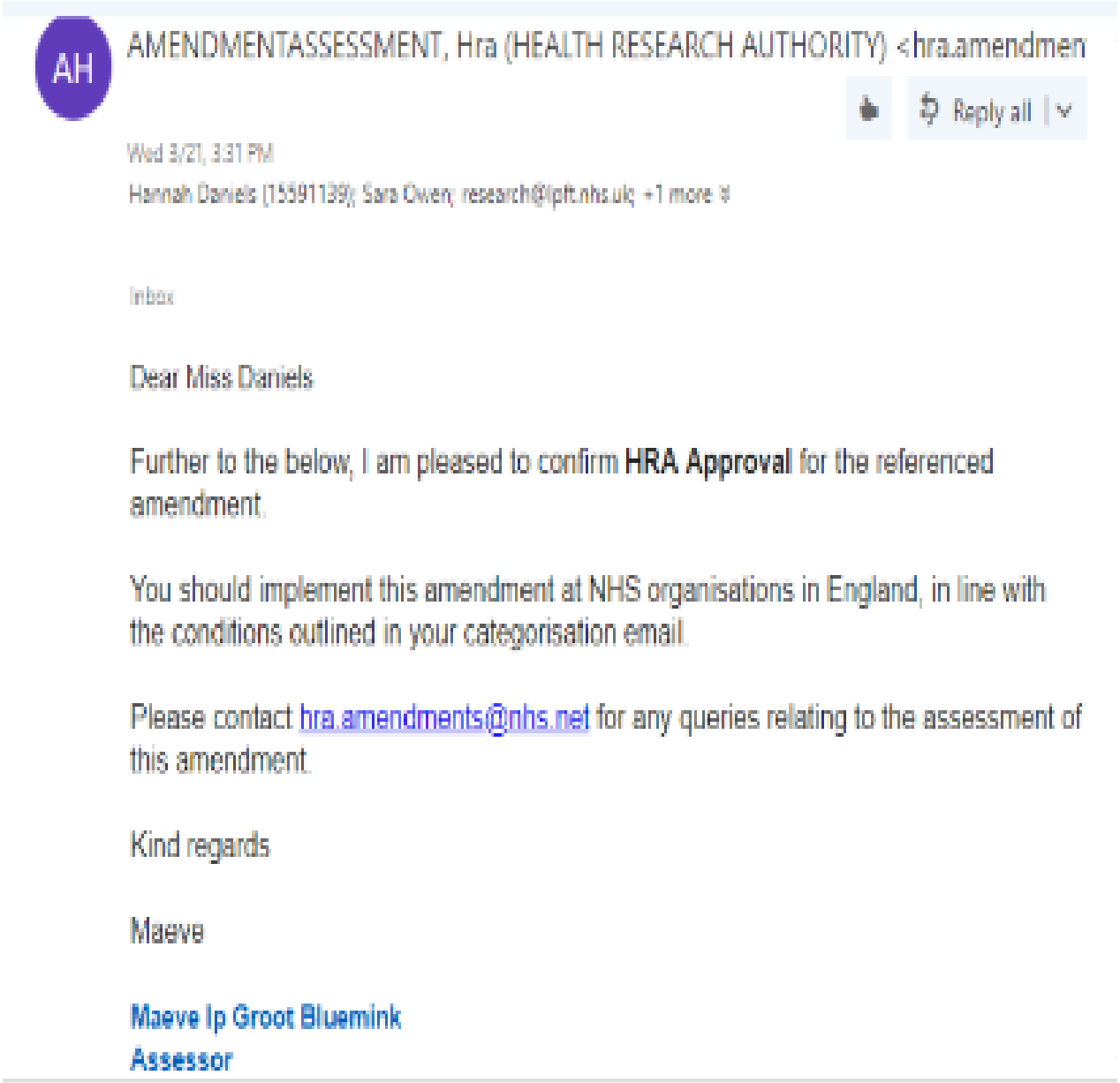
Print Name: Nima Golijani Moghaddam Date: 3.9.18
Email: nmoghaddam@lincoln.ac.uk

STATEMENT OF ETHICAL APPROVAL

This project has been considered using agreed Departmental procedures and is now approved.

Signed.....Print Name.....Date.....
(Chair, Departmental Ethics Committee)

Appendix D - Correspondence and Approval from HRA Regarding Amendment to Allow Secondary Analysis for Those Participants who Have Consented to This.



AH

AMENDMENTASSESSMENT, Hra (HEALTH RESEARCH AUTHORITY) <hra.amendmen

Reply all

Wed 3/21, 3:31 PM

Hannah Daniels (15591139); Sara Owen; research@lpft.nhs.uk; +1 more

Inbox

Dear Miss Daniels

Further to the below, I am pleased to confirm **HRA Approval** for the referenced amendment.

You should implement this amendment at NHS organisations in England, in line with the conditions outlined in your categorisation email.

Please contact hra.amendments@nhs.net for any queries relating to the assessment of this amendment.

Kind regards

Maeve

Maeve Ip Groot Bluemink
Assessor

Appendix E – HRA Amendment Request to Approved Original Study.

Health Research Authority

East Midlands - Nottingham 1 Research Ethics Committee

The Old Chapel
Royal Standard Place
Nottingham
NG1 6FS

26 February 2018

Miss Hannah Daniels
College of Social Science
Ground Floor, Bridge House
University of Lincoln,
Brayford Pool,
Lincoln
LN6 7TS

Dear Miss Daniels,

Study title:	**Exploring the impact of psychological formulation on working alliance: a mixed methods, repeated single case investigation**
REC reference:	**17/EM/0070**
Amendment number:	**3**
Amendment date:	**17 February 2018**
IRAS project ID:	**221280**

Thank you for submitting the above amendment, which was received on 22 February 2018. I can confirm that this is a valid notice of a substantial amendment and will be reviewed by the Sub-Committee of the REC at its next meeting.

Documents received

The documents to be reviewed are as follows:

Document	*Version*	*Date*
Notice of Substantial Amendment (non-CTIMP)	3	17 February 2018
Participant consent form	1	17 February 2018
Research protocol or project proposal	4	17 February 2018

Notification of the Committee's decision

The Committee will issue an ethical opinion on the amendment within a maximum of 35 days from the date of receipt.

R&D approval

All investigators and research collaborators in the NHS should notify the R&D office for the relevant NHS care organisation of this amendment and check whether it affects R&D approval for the research.

We are pleased to welcome researchers and R & D staff at our Research Ethics Service Committee members' training days – see details at http://www.hra.nhs.uk/hra-training/

17/EM/0070:	Please quote this number on all correspondence

Yours sincerely

Daniella Sarno
REC Assistant

Email: NRESCommittee.EastMidlands-Nottingham1@nhs.net

Copy to: *Mrs Tracy McCranor*

Appendix F: Confirmation of Chairs Action Approval

Sent: 26 September 2018 12:20:08
To: Robin M Colley (06045306)
Subject: RE: Reference PSY1617276

Good afternoon Robin,

Chairs Action has been approved.

Kind Regards
Katie

UNIVERSITY OF LINCOLN

Mrs. Katie Rushbrook | Administrator
College of Social Science
University of Lincoln. Brayford Pool, Lincoln, Lincolnshire. LN6 7TS

From: Robin M Colley (06045306)
Sent: 12 September 2018 14:26
To: Soprec <Soprec@lincoln.ac.uk>
Subject: RE: Reference PSY1617276

Apologies there were some issues with that submission. Please find an amended EA1 form and documentary evidence to accompany the SOPREC application.

From: Robin M Colley (06045306)
Sent: 12 September 2018 12:44
To: Soprec <Soprec@lincoln.ac.uk>
Subject: Reference PSY1617276

Dear Madam/Sir,

Please find attached my EA1 application and SOPREC Routine Extension Application form (with appended evidence) for an extension of a previous project SOPREC Reference: PSY1617276.

Appendix G

Categories of verbal response to formulations with frequencies and percentages by participant.

	Most engaged										**Least engaged**
	1. Verbal Agreement only.	2. Verbal agreement followed by an elaboration congruent with the formulation.	3.Verbal agreement followed by elaboration incongruent with the formulation	4.No agreement/ neutral response followed by an elaboration congruent with the formulation.	5.Verbal agreement /disagree followed by elaboration unrelated to the formulation	6.Neutral response Only	7.Neutral response followed by elaboration incongruent with the formulation.	8.Verbal disagreement following by a response congruent with the formulation.	9.Verbal disagreement only.	10.Verbal disagreement following by a response incongruent with the formulation.	11.No response
Frequencies											
PT 1	4	10	8	3	1	0	1	1	0	1	0
PT 2	2	5	0	3	0	4	0	0	0	2	0
PT 3	0	8	1	8	0	2	2	0	0	0	3
Percentages											
PT 1	14	34	27	10	3	0	3	3	0	3	0
PT 2	13	31	0	19	0	25	0	0	0	13	0
PT 3	0	33	4	33	0	8	8	0	0	0	13